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MASSACHUSETTS  
HIGHWAY COMMISSION

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YEAR ENDING NOVEMBER 30

1912

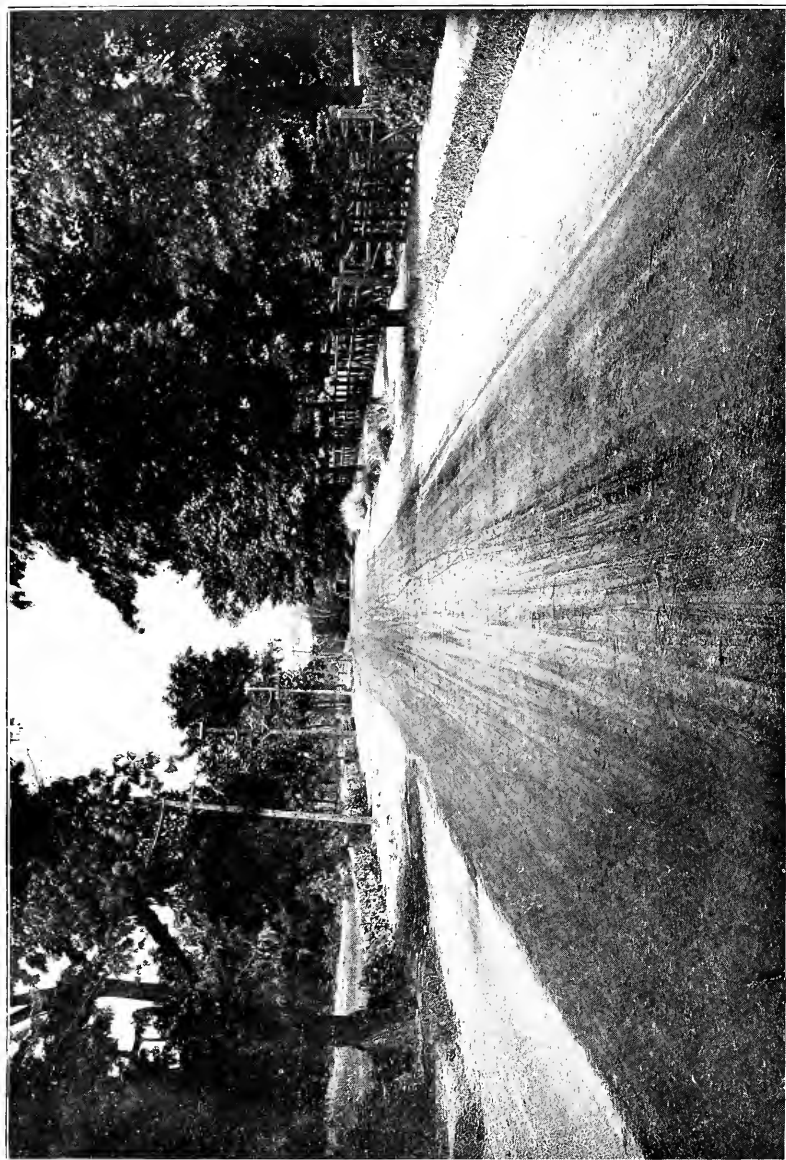








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Macadam Road with "Heavy Cold Oil Blanket," after Three Annual Treatments. State Highway in Newton.

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TWENTIETH ANNUAL REPORT  
OF THE  
MASSACHUSETTS  
HIGHWAY COMMISSION,

FOR THE FISCAL YEAR ENDING NOVEMBER 30, 1912.

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PART I. — STATE HIGHWAYS AND MOTOR VEHICLES.

PART II. — SUPERVISION OF TELEPHONE AND TELEGRAPH  
COMPANIES.

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JANUARY, 1913.



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THE STATE BOARD OF PUBLICATION.

## The Commonwealth of Massachusetts.

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*To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled.*

The undersigned commissioners, appointed under the provisions of chapter 476 of the Acts of 1893 and of chapter 474 of the Acts of 1900, herewith submit, in Part I., their twentieth annual report, in accordance with the provisions of chapter 47 of the Revised Laws, and, in Part II., their seventh annual report relative to their supervision of telegraph and telephone companies, under the provisions of chapter 433 of the Acts of 1906; both reports being for the fiscal year ending Nov. 30, 1912.

WM. D. SOHIER.

F. D. KEMP.

JAMES W. SYNAN.

BOSTON, MASS., JAN. 1, 1913.



# ANNUAL REPORT OF THE MASSACHUSETTS HIGHWAY COMMISSION.

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## PART I.

### RELATING TO STATE HIGHWAYS AND MOTOR VEHICLES.

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The vacancy caused by the resignation of Mr. Harold Parker, of Lancaster, former chairman of the commission, was filled in June, 1912, by the appointment of Mr. James W. Synan, of Pittsfield, who assumed his duties on July 8. Mr. William D. Sobier was designated by the Governor as chairman of the commission.

#### ORGANIZATION.

The commission has under its charge road work, motor vehicles and the supervision of telephone and telegraph companies. There is practically a department for each.

#### TELEPHONES.

The returns and tabulations, etc., of the telephone and telegraph companies are in charge of the secretary, F. I. Bieler. Mr. Bieler is an expert accountant, and in addition to his duties as secretary he has been of valuable assistance to the commission, not only in telephone matters but in many cases requiring special studies and investigations. The commission has employed as experts Messrs. D. C. and William B. Jackson, to examine into and report on the matters of rates, charges, revenue and accounting of the New England Telephone and Telegraph Company.

#### MOTOR VEHICLES.

The automobile department, which is engaged in the registration of motor vehicles and the licensing of the operators thereof, including the collection of fees therefor, is under the charge of

E. J. O'Hara. In this department there are from 40 to 80 assistants, clerks, stenographers, shippers, packers, etc., depending on the season of the year.

#### EXAMINATIONS AND INVESTIGATIONS.

This subdepartment, which conducts all the examinations of applicants for chauffeurs' licenses, etc., and investigates motor vehicle accidents, is in charge of F. L. Austin. There are 7 other examiners and investigators employed in this work.

#### HIGHWAY DEPARTMENT.

This department has charge of all road and bridge work, advice to municipal authorities, etc. At the head of it is the chief engineer, A. W. Dean, whose assistant is S. A. Parsons. The office engineering department which makes the surveys, prepares all plans and estimates, etc., is in charge of A. M. Lovis. In this department are employed from 20 to 50 engineers, draftsmen, instrumentmen and rodmen, depending on the season of the year and the amount of work on hand.

The State is divided into four divisions, each in charge of a division engineer, and each division engineer has one or two assistants in charge of particular work, like "small town" work, maintenance, etc., and as many resident engineers are assigned to his division from time to time as are necessary to supervise and inspect the actual work which is in progress.

Division I. is in charge of J. A. Johnston, with headquarters at Springfield, A. D. Dudley being the assistant division engineer. This division includes most of Berkshire County, Hampden and Hampshire counties and a large part of Worcester County.

Division II. is in charge of C. H. Howes, with headquarters at Greenfield. This division includes Franklin County, a part of Hampshire County and many towns in the northern part of Worcester County.

Division III. is in charge of F. C. Pillsbury, whose assistant division engineer is D. H. Dickinson. The headquarters of this division are at Boston, the division including the eastern part of Worcester County, Middlesex, Essex and Suffolk counties and a part of Norfolk County.

Division IV. is in charge of W. R. Farrington, with W. P.



Hammersley and H. C. Holden as assistant division engineers. This division includes part of Norfolk County and Bristol, Plymouth, Barnstable, Dukes and Nantucket counties, the headquarters being at Middleborough.

The work on Hoosac Mountain is in charge of H. D. Phillips, assistant division engineer, especially assigned to the work.

Whatever success the commission may have obtained in building and maintaining roads is largely due to the intelligent, skillful and faithful work of all these experienced engineers. Most of the principal engineers and assistants have been in the service of the Commonwealth for over ten years, and quite a number of them for a much longer period of time.

The several departments report to the commission through its secretary, F. I. Bieler. His assistant is Fred Fair, who has been with the commission for many years, and his good work deserves recognition.

The records of the commission, etc., are in charge of the recording secretary, Miss Mary A. Riley. The accounting department is in charge of J. M. McCarthy. Both of these able officers have been with the commission practically since its organization, and it is due to their tireless devotion, interest and accurate work, and that of their able assistants, that the records and books have been so well kept.

#### HEARINGS.

During the year 289 hearings were given on automobile complaints and accidents and matters relating to the registration and operation of motor vehicles.

Public hearings were given on special regulations by municipal authorities affecting the use and operation of motor vehicles in 7 cities and towns, the details of which are more fully stated in another part of this report.

There were 18 hearings given on petitions for the location, extension and relocation of street railways on State highways.

In addition to the regular hearings held in each of the 14 counties, the commission gave 85 other hearings on petitions from various cities and towns for State highways or for aid in the improvement of town ways.

Besides these formal hearings given at the office or elsewhere to the authorities or representatives of the cities or towns, one

or more members of the commission met the municipal authorities or inspected the roads to be built or improved by the municipalities or otherwise, in probably about one-half of the towns in the Commonwealth.

There have been only three or four hearings on matters relating to telephones, the details of which will be more fully set forth in Part II. of this report.

#### STATE HIGHWAYS.

During the year ending Nov. 30, 1912, the commission completed work on about 33 miles of State highway, portions of which were laid out in 1911. Construction was commenced, but not completed, on over 20 miles of roads in 16 towns. Layouts were made of about 41 miles of State highway in 46 towns. The total length of State highways at the end of the year was 920 miles.

The total expenditures by the commission for the construction of State highways since the work began, including the planting of trees, amounts to \$8,379,079.66. It must be remembered that the counties repay to the Commonwealth one-fourth of the cost of constructing these highways.

There are now petitions on file covering about 2,000 miles of road.

#### CHARACTER OF CONSTRUCTION.

Of the State roads completed in 1912, about  $4\frac{1}{2}$  miles were surfaced with water-bound macadam;  $6\frac{3}{4}$  miles with gravel (these roads being located where the automobile travel was not excessive); about 3 miles with sand bound with oil; about 12 miles were surfaced with bituminous macadam, constructed by either the penetration or mixing method; nearly 4 miles with macadam and a surface application of oil; and  $2\frac{1}{4}$  miles were surfaced with gravel, the upper course of which was bound with a bituminous binder.

Further details regarding the methods of construction used in 1912 will be found in Appendix A, the report of the chief engineer.

#### LOCATION OF STATE HIGHWAYS (THROUGH ROUTES).

##### *Western Massachusetts.*

The commission has continued the policy of filling in the gaps as rapidly as possible on the main lines of travel, building the roads on the through routes in the smaller and poorer towns which could

not afford to build them. In the communities which were able to help themselves the commission has co-operated whenever possible.

Following this policy the north and south routes in Berkshire County have been built upon to connect Connecticut and New York points with Pittsfield, North Adams and points in Vermont.

State highways have been laid out in Sheffield and Lanesborough. Work has also been done with "small town" or "motor vehicle" money on the route up the valley.

Pittsfield has agreed to co-operate by building portions of the roads leading to Richmond and North Adams. The commission contemplates laying out and constructing the missing section on the road to Albany, thus completing this route.

The work already done and in process, on the through route from Greenfield to North Adams, over Hoosac and Shelburne mountains, is fully described under those titles.

#### *Springfield to Pittsfield.*

In 1912 the commission did not do much work on this route in Lee and Becket because of the extensive work which was being done by the trolley company, requiring changes in location, etc. It has arranged with the company for the necessary relocations, bridges, etc., so that this route can soon be built upon.

The commission recently made a contract for a section of road in Becket on this route, and another section of highway is being built in West Springfield on the road to Westfield. The latter section was one of the worst on the whole route.

#### *Connecticut Valley.*

The route on the west side of the river in Agawam is completed. The route on the east side is even more used, and there was a bad stretch in Longmeadow just at the Connecticut State line. The commission arranged to co-operate with the town of Longmeadow, and a part of this bad piece of road has been reconstructed, the commission paying the cost for the ordinary width of a State highway and the town for the additional width it desired.

A section of State highway was laid out in South Hadley on the north-and-south route.

In Northampton on the through route, where the roads were in bad condition, an arrangement was made whereby the whole

of the Hatfield Road, so called, was built, the city of Northampton and the commission each building a section.

On the road from Northampton south towards Holyoke, known as the Mt. Tom Road, where the road was so low that it often became flooded and impassable in the spring, an arrangement was made whereby the city is to furnish the right of way, pay the cost of grading and drainage; the Commonwealth to construct and pay for a bituminous macadam road 18 feet in width. The contract has been let for the work, and the road is now in process of construction.

When this is done, and the balance of the road in Longmeadow is constructed, there will be practically a continuous stretch of good road up the valley from the Connecticut line to Greenfield.

#### *Vermont and New Hampshire Route.*

On the line north from Greenfield to New Hampshire and Vermont the commission has been building for two years in Gill and Bernardston. This left only two bad stretches of road in Northfield to complete this line, one on the south and one on the north. A State highway was laid out to connect the good road in Bernardston and Gill with the State highway in Northfield. This road is practically completed.

In the summer an arrangement was made with the town of Northfield whereby the town should build or pay for a short piece of road in the village, and the commission should build the balance of the road to the New Hampshire State highway. The contract was let and the work is progressing rapidly. This route will be completed early in 1913.

#### *Springfield and Worcester to Boston.*

This route is practically complete, with the exception of a few bad pieces of road in the villages.

The town of Brookfield in 1912 co-operated with the commission in improving a portion of the road in that town on the main east-and-west line; the commission also building a section of State highway to connect with the State highway in North Brookfield. The work is nearly completed.

The commission in 1912 spent a large amount of money in repairing and resurfacing portions of this very important through route.

*Greenfield and Fitchburg to Boston.*

Work has been done on this route for several years, and, with the exception of a mile or two in Erving, it is practically completed from Greenfield to Fitchburg.

In Erving a power company has a charter for the building of a dam, which will flood the present highway; consequently, the laying out of a State highway there has been delayed. Negotiations are in progress, however, and the commission expects to be able to arrange with the power company so that, on some fair division of expense, the highway can be relocated and constructed upon higher ground. This should be done next year and the road built.

*Fitchburg to Boston.*

There is no one line of good road completed between Fitchburg and Boston. State highways have been constructed upon several routes.

A layout was made in Acton this year, starting at the State reformatory in Concord, and covering about one-half of the unconstructed and bad piece of road between that point and the State highways in Acton, Boxborough and Harvard. This piece of road is completed.

Layouts were made in Littleton and Ayer on the main line between Boston and Fitchburg, via Ayer, North Shirley and Lunenburg.

This route was selected because the grades were very good, and there were fewer miles of road to be built to complete a good through road than by any other route, much of the road in Acton, Littleton, Ayer and Lunenburg being already State highway or having been constructed by the towns themselves or under the "small town" act.

A piece of State highway was built in Ashby to connect with the State highway in Townsend and Groton, and so on to Boston.

*Fitchburg-Worcester-Providence.*

The commission has done extensive work on this route, which has considerable travel, for the past two years.

There are several miles of good State highway on the north leading toward New Hampshire, in Leominster, Sterling and West Boylston. Work was done in Sterling on this line in 1912.

Between Worcester and Providence the commission has been building in the town of Grafton for the last two years, and has built a piece of road in Uxbridge, the town of Uxbridge co-operating on this through line by building a piece of road in the village.

The commission has also built in Holliston on the line between Boston and Milford, connecting with the State highway at South Framingham.

*Merrimack River Route.*

Sections of State highway were built in 1912 in the towns of Salisbury and Amesbury, filling some of the gaps on the road on the north side of the Merrimack River.

There is now no good road between Lawrence and Lowell, the commission having mentioned elsewhere, at length, what is being done under last year's act toward building the so-called River Road between Lawrence and Lowell, in the towns of Dracut and Methuen. Under the act passed last year the county commissioners of Essex County are to lay out and construct a continuation of this River Road to a point in the city of Lawrence, so that there will be a good road all the way through on the north bank of the river. The highway commission has been directed by the Legislature to lay out this piece of road as a State highway after the county commissioners have constructed it.

The commission has continued its work westerly from Lowell, building in the town of Tyngsborough. It has also built a piece of State highway in Westford, which is on the line between Lowell and Worcester and points in Middlesex County.

*Boston and the North.*

The commission has continued building upon this line, having made a layout in 1912 in the city of Woburn. It has completed a section of road in North Andover, on the main line between Boston and Haverhill, and has also built a piece of State highway in Haverhill to connect with the new highway which the city of Haverhill has recently constructed, at great expense, leading into that city from the south.

The road between Boston and Newburyport via Salem, Ipswich and Newbury, and to the New Hampshire line in Salisbury, is practically completed, short sections only being omitted in the cities and villages.

The secondary main line from Boston to Newburyport, the Newburyport Turnpike, is mentioned elsewhere.

The commission in 1912 made a layout in the town of Essex on the main line around Cape Ann. It also commenced construction in Middleton on the line between Salem and Lawrence.

A State highway is to be constructed for a short distance in the town of Revere, over a very bad piece of road, to connect with the existing State highway in that town on the main line from Boston to Essex County.

The Revere traffic road is mentioned elsewhere.

#### *Boston-Providence.*

The commission in 1912 built a short stretch of State highway over a bad piece of road on this route in the town of Wrentham.

It also laid out a section of State highway in Walpole, extending from the State highway to the beginning of the thickly settled part of the village, the town co-operating with the commission in the rebuilding of a bridge on this section.

#### *Boston-Taunton-New Bedford.*

On this main through route the commission co-operated with the town of Canton, using some money from the motor vehicle fees fund for the purpose of improving the main road in that town near the Milton line.

In Easton on this route most of the road has been improved under the "small town" act at the joint expense of the State and the town. In 1912 arrangements were made for building the remaining section of the road in that town at the joint expense of State and town.

The commission also made a layout in the town of Raynham on this same line, arrangements having been made whereby if the commission built one-half of the road in 1912 the town would build the other half the following year.

Part of the road in Taunton leading to Raynham was built in 1912, the State building about one-half and the city of Taunton about one-half.

The road between Taunton and New Bedford has been in bad condition for many years, and the demand for its improvement has been insistent. The commission has been building on this

line for the last three years, and in 1912 a lengthy section was built in the town of Lakeville.

The city of Taunton has co-operated by making an appropriation and by building a piece of road on the same route, and it is understood that in 1913 the city will complete its part of the work, on condition that the commission will construct a section to complete the missing links.

In 1912 the commission constructed a piece of State highway in Dighton on the main line between Taunton and Fall River; also in Swansea on the main line between Fall River and Providence; and made an allotment for the completion of this line in the towns of Rehoboth and Seekonk.

#### *Boston and the Cape.*

The line is practically completed to the Cape points via Middleborough and Brockton. There is also a very good line to Plymouth via Cohasset and Marshfield.

On the main line between Plymouth and Sandwich, north side, the commission in 1912 constructed an extension of the State highway in the town of Plymouth.

#### *Cape Roads.*

The commission in 1912 constructed a piece of State highway in Bourne to connect with the main road running to Falmouth, and has laid out a section in Mashpee on the line between Falmouth and Barnstable. On the north side it built a section of road in Sandwich to connect with the main line on the north side of the cape.

The improvement of the road all the way to Provincetown is fully set forth elsewhere. The worst sections of road on the main line are those which exist in the town of Bourne.

The construction of the Cape Cod Canal has made the relocation of many highways necessary. All travel in that locality has been diverted. The canal company has let a contract and is engaged in building a highway on the north side of the canal to connect with the existing State highway in Bourne, and it is quite probable that the commission will include this road in the system of State highways. It is understood that the town of Bourne will construct the roads upon the south side of the canal.



When this is done and the road between Plymouth and Sandwich completed, also a short section in Sandwich, there will be practically a continuous line of State highway or improved road on both the north and south sides of the cape, and all the way from Boston to Provincetown.

#### "SMALL TOWN" ROADS.

Since the passage of the so-called "small town" act the commission has allotted over \$600,000 for the improvement of town ways under that act, and the towns in which the work has been done have contributed about \$385,000. This money has been expended in the improvement of about 300 miles of roads in about 135 towns.

A large mileage of town roads has also been improved with funds secured from the motor vehicle fees, an account of which will be found elsewhere in this report.

In all of this work the commission has co-operated with the towns in improving sections of road over what might be called secondary lines of travel, which are not only of local interest, but also serve as feeders to the State highways.

The Legislature of 1912 authorized the expenditure for the next five years of \$1,000,000 a year for the construction of State highways and the improvement of the "small town" roads. This will make \$50,000 a year available for the improvement of roads in towns of less than \$1,000,000 valuation, which are not required to make any contribution; a like amount for towns of less than \$1,000,000 valuation, which contribute an equal amount; and an additional \$50,000 a year for towns of over \$1,000,000 valuation, these towns being required to contribute an amount equal to the commission's allotment.

During the last few years there has not been sufficient money available to enable the commission to meet all of the petitions from towns making special appropriations for road work, conditional upon the commission's allotting an equal amount.

The commission feels that the most hopeful sign of the universal demand for good roads lies in the fact that a large majority of the towns in the Commonwealth are awake to the importance of good roads and are actively engaged in securing them.

Many requests are made by town and city officials for engi-

neering advice from the commission; in fact, such requests during the busy season are so numerous that they cannot all receive prompt attention.

The commission feels that the work which has been done in these "small towns," under proper methods and supervision, and the advice which is given to the towns for the improvement of their roads, is a most valuable work. In a short time it will result in the improvement of many miles of country roads, and the example set by one town will be followed by the next. In fact, there are few towns in this Commonwealth which are not actively engaged in improving their roads and trying to improve their methods of construction and maintenance.

#### MAINTENANCE.

With the increasing mileage of State highways, the increase in travel by automobiles, and in the use of motor trucks for long distances to and from the larger cities, the question of maintenance becomes one of vital importance.

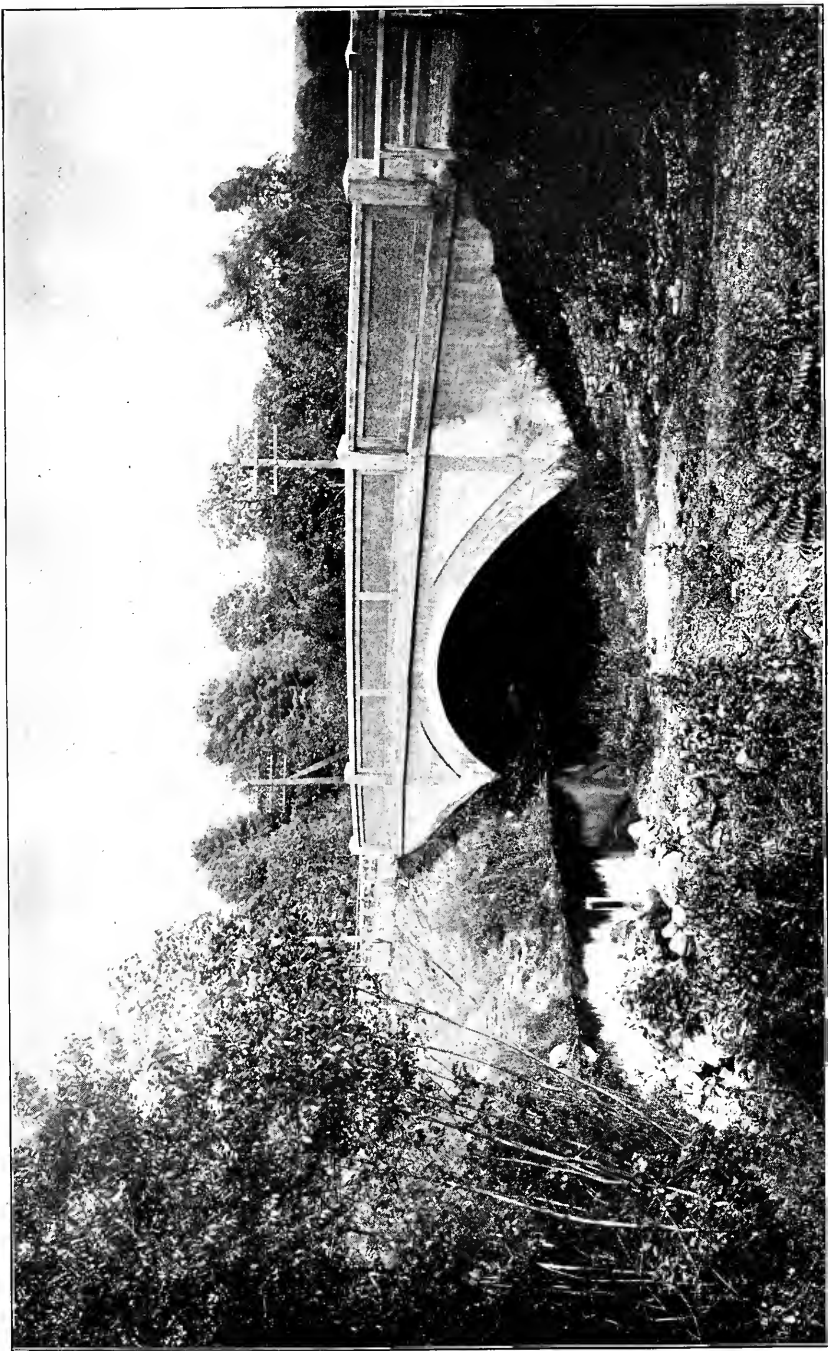
During the year 1912 the commission spent over \$500,000 in maintaining State highways, \$200,000 of which was provided by direct appropriation by the Legislature and the balance secured from motor vehicle fees.

The traffic census showed that in the last three years the travel on the State highways increased over 40 per cent. and the automobile travel over 121 per cent. In some places there were 70 to 75 motor trucks a day.

This traffic will in the future require the resurfacing of many miles of road with some more permanent material than water-bound macadam, and undoubtedly many miles will require reconstruction at a large expense, as the upper 3 inches, at least, should consist of some bituminous macadam.

It is probable that with this increase in travel many corners will require widening, and that, wherever possible, the present macadam should be widened from 15 to 18 feet on all the main through lines.

It is absolutely necessary to-day to apply some form of dust-layer or bituminous binder to macadam roads, either by a surface application or by incorporating it with the upper 3 inches of broken stone. If this is not done the roads will shortly be destroyed by the high-speed motor vehicle travel.



Reinforced Concrete Bridge, 42 Feet Span. State Highway in Spencer.



## BITUMINOUS MATERIALS USED.

As the commission has previously stated, the increasing automobile travel makes it absolutely essential that the roadways on all main through routes should be treated with some bituminous binder to prevent the roads from raveling. The application of such binders under pressure has been found to produce more uniform results than were formerly secured by the so-called gravity method.

Something over 2,000,000 gallons of bituminous material were used on over 280 miles of State highways in 1912, including more than 21 miles of road constructed or resurfaced. At the present time, of the 920 miles of State highway laid out, nearly 730 miles have been treated with some bituminous material, either in construction or maintenance.

## CONDITION OF STATE HIGHWAYS.

While it is true that many miles of State highways need reconstruction with a more permanent surface, it is also true that the State highways are in better condition than they were three years ago. The commission's division engineers, each having charge of a certain section of the State, agree that, as a whole, the roads in their respective divisions were in better condition in the fall of 1912 than they had been at any previous time.

It is also true, of course, that many miles of these roads have been constructed for years and were merely maintained and saved by surface applications of some bituminous material.

## BRIDGES AND CULVERTS.

Most of the bridges built during the year were of reinforced concrete. A detailed statement of them will be found in the chief engineer's report.

Plans were made for the reconstruction of Scott's bridge over the river between the towns of Buckland and Charlemont, which is mentioned elsewhere; and also for a bridge in the town of Walpole.

Designs and estimates were also prepared for bridges in the towns of Groton, Wareham and Clarksburg.

## BRIDGES OVER THE MERRIMACK RIVER AND TAUNTON GREAT RIVER.

By chapter 716 of the Acts of 1912 the commission was given charge of the bridge over the Merrimack River, between the city of Newburyport and the town of Salisbury.

By chapter 717 of the Acts of the same year the commission was also given charge of the bridge over the Taunton Great River, between the city of Fall River and the town of Somerset.

The commission's engineers estimate that it will cost \$27,000 in 1913 to carry out the provisions of these acts, which require the commission to keep the bridges in good repair for travel and to maintain and operate said bridges, both being draw-bridges; the estimate covering the Merrimack River bridge being \$11,200 and that covering the bridge over Taunton Great River, \$15,800.

Legislation of this character is a new departure from the former policy of the Commonwealth. Originally many of the larger bridges were toll bridges, built and maintained by private corporations. As the charters of these corporations expired, the bridges were made free, and the expense of maintaining them was placed upon the county or the cities and towns in which they were located.

A number of special acts have been passed requiring the building of certain bridges, and dividing the expense in various ways among the counties and municipalities benefited. In only a very few instances has the Commonwealth paid any part of such expense, and then only a small part. In one instance, at least, the Commonwealth's payment was because the abolition of a grade crossing was involved.

The commission feels that it should call the attention of the Legislature to the fact that an extension of this policy, requiring the Commonwealth to maintain large expensive bridges, even on main through routes of travel, would involve an annual appropriation by the Commonwealth several times as large as the amount appropriated for the maintenance of State highways.

Should the Commonwealth undertake the construction of such bridges and the necessary street improvements, or the reconstruction of the many old or inadequate bridges on through routes near the larger cities, the cost of such construction and improve-

ments would very soon be several times as great as the total amount spent on State highways annually, and the expense of maintaining a bridge department, with the necessary engineers; would easily cost as much or more than the cost of maintaining the present engineering force.

Quite a number of the bridges that now require rebuilding, with the improvements in the streets necessary for the accommodation of the present traffic, would involve the expenditure of several million dollars in the next few years.

#### WORK UNDER SPECIAL ACTS AND UNDER CHAPTER 525, ACTS OF 1910.

##### *Florida Mountain Road.*

In 1911 the Legislature appropriated \$75,000 for constructing or improving portions of the road between the city of North Adams and the valley of the Deerfield River.

Extensive surveys and studies were made involving the surveying of about 50 miles to insure the selection of the best possible route.

The commission reported to the Legislature early in 1912 that it had found an entirely new route crossing the Deerfield River a little above the town of Charlemont, continuing along the valley of Cold River for a considerable distance, thence crossing that river and continuing along Manning Brook to a point in the existing highway near Drury post office.

From this point again a new location was found, with better grades, to the top of Whitcomb Hill, and from there the line of the old highway was followed to the dividing line between the town of Florida and the city of North Adams.

The commission informed the Legislature of 1912 that if a total sum of \$150,000 were made available it believed the road could be constructed, following the route above outlined, for that sum of money, together with what additional money the commission could make available from its regular funds.

The Legislature of 1912 consequently appropriated \$75,000, making a total appropriation of \$150,000.

The act required the county commissioners of Franklin and Berkshire counties to secure the rights of way and lay out a road upon the location selected by the commission.

Considerable delay was caused by citizens of North Adams and elsewhere who were desirous of having the highway follow the existing way via the village of Hoosac Tunnel.

In order to insure the selection of the best route and to satisfy all reasonable doubts, the commission had additional surveys made, not only on the mountain itself but also on the road between Charlemont and the village of Hoosac Tunnel, as this section of road as well as the road over the mountain would become a part of any such through route.

The surveys and estimates made showed conclusively that the length of the road from Charlemont to the top of the mountain would be about the same by either route, while the cost of constructing a road on the existing route would be about twice as much as the cost of construction if the Cold River route, so called, were adopted; and, perhaps more important still, the grades would be very much better on the latter route.

The road via the Hoosac Tunnel route had an average of a 10 per cent. grade on the mountain, and in many sections it had a grade of 17 or 18 per cent., and even if twice the amount of money available were spent on that road there would still be over 7 miles of road with a 7 per cent. grade, while on the road to be built via the Cold River route there will be only  $2\frac{8}{10}$  miles of road with a 7 per cent. grade.

The Cold River route was consequently selected, the land was secured by the county commissioners, and early in September a contract was made for the construction of the road. Quite an amount of rough work has already been done.

The proposal of the lowest bidder amounted to \$153,000, based on the estimated quantities. This very closely coincides with the amount of the estimate made by the commission's engineers, so that the commission has every reason to feel that the estimate made by its engineers, showing the cost of constructing the route via Hoosac Tunnel to the same point on top of the mountain to be over \$300,000, must have been substantially correct.

The highway via the Cold River route is a little over 12 miles in length, the scenery along it is most beautiful, the road passing through the woods on the borders of Cold River, a most picturesque stream, with the hills rising abruptly on each side.

After crossing Cold River the road ascends at nearly an even



grade on the wooded hills on the north side of Manning Brook, with the brook far below for long distances. This route will be one of the most beautiful, if not the most beautiful, in the New England States, and it will equal that on many roads in foreign countries about which so much has been written.

While the engineers surveyed this route, it is not really new but old. It was substantially the route that the old Mohawk trail followed so many years ago. It was the route that the pioneers followed in going from the forts and settlements in the Connecticut and Deerfield valleys to the settlements and forts in northern Berkshire, at Williamstown and elsewhere.

The road will undoubtedly be known as the "Mohawk Trail." It will open up a territory full of historic interest, and revive the tales of daring and hardship, of courage and suffering, when our forefathers were making this Commonwealth in which we live.

The commission has had some surveys made for the purpose of ascertaining the best route upon which a road can be built down the west side of the mountain to connect the existing road in North Adams, near the foot of the mountain side, with the new road now under construction.

These surveys are now being plotted, so that a reasonably accurate estimate of the probable cost of construction can be made.

It is evident, of course, that estimates of the expense of construction over new routes in such rough country can only be approximate, it being impossible to determine beforehand the exact quantities of either earth or ledge that must be excavated.

#### *Dalton-Goshen Road.*

This is a secondary route to the Berkshires, from Northampton, in the valley of the Connecticut River, to Pittsfield.

The commission has been working upon this route for several years past, believing it an important one.

The town of Williamsburg has for several years been most interested, contributing liberally towards building a macadam road on this line, and has done most excellent work.

In Goshen during the last three years the commission allotted \$7,100 from the motor vehicle fees fund, \$3,000 of which was allotted in 1912. Some of the work in Goshen was done in 1912 near the Cummington line, in connection with work done in Cum-

mington, relocating the road so as to eliminate a dangerous curve.

The commission also spent quite a large sum of money in resurfacing and underdraining the State highway in Goshen.

Cummington is a very poor town, with a large mileage of main road. In the last three years the commission allotted \$9,250 from the motor vehicle fees and the town appropriated \$500 for work on this road. Nearly five miles of road have been improved in Cummington and more than 8 miles on the whole route, a good passable gravel road being built.

In 1911 the commission allotted \$1,000 and improved the short piece of road in Hinsdale on this route.

The town of Windsor has co-operated most generously for such a small town. With a valuation of less than \$300,000, the town of Windsor appropriated \$500 a year for the last four years, and the commission allotted \$1,500, from its "small town" money and \$9,500 from the motor vehicle fees fund for use on this same route.

The road built in Windsor has been very expensive, as most of it has required a foundation, and as there was no gravel available it was necessary to construct a macadam road.

These three towns — Windsor, Cummington and Goshen — have all done the work themselves and have secured most excellent results for the money spent.

In the last four years, therefore, the commission allotted \$28,400, and the towns spent \$2,530 of their own funds, in building on this through route.

The Legislatures of 1911 and 1912 each appropriated \$10,000, or a total of \$20,000, to be spent upon this route between the towns of Dalton and Goshen.

The necessary surveys were made and in the fall of 1912 a contract was let for building a piece of road from the State highway in East Windsor towards the top of Windsor Hill.

The road is extremely narrow and dangerous and is very expensive to construct, because there is a large amount of ledge to be blasted, a bridge of 24-foot span to be built at quite an elevation above the river, and there is no gravel available for surfacing, making it necessary to use broken stone.

When the section of road now contracted for is completed, the

dangerous conditions at the worst places in the road will have been eliminated. A number of miles of road will still remain to be built before the entire route is widened and improved.

*Shelburne-Greenfield Road.*

The commission allotted in 1910 and 1911 the sum of \$7,500 from the motor vehicle fees fund for the purpose of helping to secure a good road over Shelburne Mountain, between the towns of Greenfield and Shelburne. This is on the main through route which will eventually extend from Greenfield to North Adams over Florida, or Hoosac, Mountain.

The town of Greenfield in 1910 and 1911 appropriated \$4,300 and the town of Shelburne, \$2,000, for use upon this road, and the Legislature of 1911 made an appropriation of \$10,000 for the same purpose.

A contract was let in 1911 to improve the road on the Greenfield side. Work was in progress during the summer of 1911, and a great deal of work was also done during the winter. In the spring of 1912 the work on the Greenfield part of the road was practically completed, and 1 mile had been done upon the Shelburne side. This work was steadily continued in 1912, nearly 7 miles of road having been improved in the two towns.

The Legislature of 1912 made a special appropriation of \$20,000 for this same road, the commission having allotted \$10,000 from the motor vehicle fees fund to be used therewith. This makes a total of \$53,800 which has been available for this road, \$30,000 of which was a special appropriation and \$17,500 allotted by the commission from the motor vehicle fees fund.

The worst parts of the road over the mountain have now been improved. The commission has not attempted to put any permanent surfacing upon this road, believing that the first thing necessary was to secure a road of sufficient width, with proper grades and drainage; in other words, a good country road that would be entirely sufficient for all travel which might go over it during the summer months for many years to come. The work done consisted in improving the grades and drainage, and removing ledge where necessary to get sufficient width. The expenditures to December 1 on the whole of this road were about \$42,000,

including the money appropriated by the towns, leaving a balance of about \$12,000 to be expended in 1913.

The commission believes that on such main through routes as this, where the territory is sparsely settled but the connecting link of great importance, the road should be improved and made safe for its whole length as rapidly as possible, leaving the question of future surfacing, in some permanent manner, to be done after a reasonable good, passable through route has been completed.

*Buckland-Charlemont Road (Scott's Bridge).*

On the main through highway between Greenfield and North Adams there was an old and weak wooden bridge, called Scott's bridge, across the Deerfield River at the dividing line between the towns of Buckland and Charlemont. This bridge was not sufficient to carry any heavy loads.

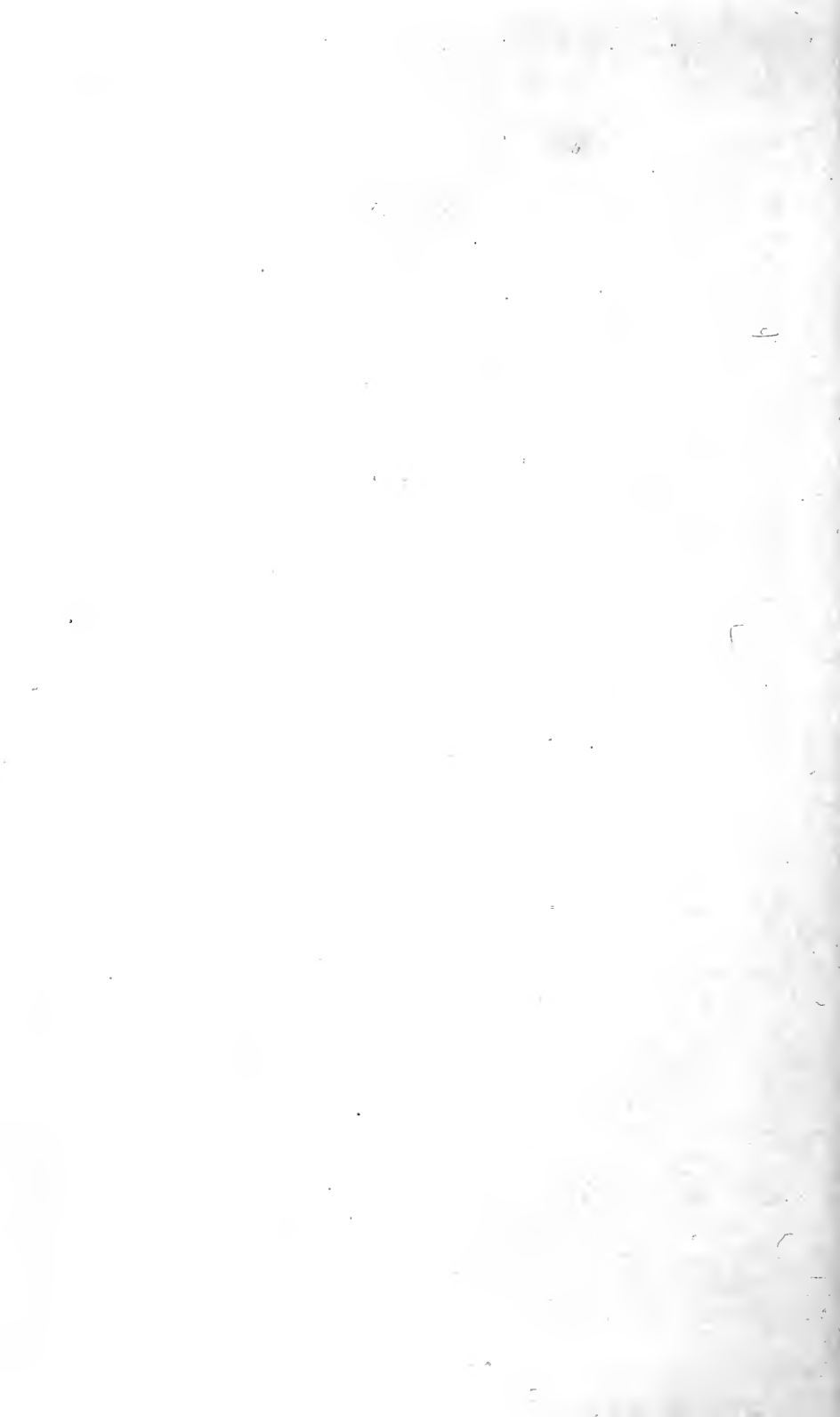
The Power Construction Company of Shelburne was building a dam at that place and flooded out the old road so that it became necessary to raise the bridge abutments and the grade of the road. Feeling that a new bridge of modern construction was extremely necessary there, the commission made arrangements with the county commissioners of Franklin County and the Power Construction Company, whereby early in the year 1913, it is hoped, there will be a modern bridge there, capable of carrying any reasonable load, to replace the old wooden bridge. The plans for the new bridge were drawn by the commission, and the agreement in substance was that the State should pay one-third of the cost of the new bridge and the county and Power company should pay the balance; the Power company, of course, paying for the raising of the grade of the road and the abutments of the old bridge, the additional expense for wider abutments for the new bridge being divided among the various parties in interest.

*Road in Charlemont.*

On this through route the commission has been working in conjunction with the town of Charlemont for the past two years, widening and improving the road between Buckland and Charlemont. The work consisted in the removal of ledge at the narrow places, and in the doing of such grading as was necessary to make a reasonably safe and good country road.



Macadam Road with "Hot Oil Blanket," after Two Seasons' Wear. State Highway in Warren.



Much work has also been done in the town of Charlemont west of the point where the new Florida Mountain Road will enter, between the villages of Charlemont and Zoar, consisting of the same character of work, viz., improving grades, removing ledges, etc., and building a good country road. The commission expects to continue this work with the co-operation of the towns, so that in a few years there will be a reasonably good country road from Charlemont to Rowe.

*Ware-West Brookfield Road.*

By chapter 703 the Legislature of 1912 appropriated \$10,000 to be spent upon the road between Pond Hill, so called, in the town of West Brookfield, and the Gilbertville Road in the town of Ware.

This is a cross-country road, about 3 miles long, through a sparsely settled country, and it has a comparatively small amount of traffic.

Surveys and studies were made to determine the best method of improving the road with the money appropriated. The engineer's estimate showed that less than 1 mile of road could be built if the standard form of State highway construction were adopted.

The commission therefore believes that it will be best to expend the money in widening, draining and improving the worst parts of the road, and improving the condition of the rest of the road as much as possible, thereby securing a reasonably good country road for the whole distance. It was so late in the year when the studies were completed that it seemed best to postpone the work until next spring.

*Revere Traffic Road.*

Under chapter 697 of the Acts of 1912, the commission was authorized to expend a sum not exceeding \$175,000, in addition to the \$125,000 appropriated by the Legislature in 1910 and 1911, by purchasing, or taking by right of eminent domain, land for the purpose of eventually laying out and constructing a highway in the town of Revere from a point at or near the Point of Pines station to a point on Revere Street. The commission was also required, in connection with this, to consider the continuation of said highway from Revere Street to a point at or near Eliot Circle.

Surveys and studies have been made of five routes, and the commission's engineers are at present engaged in making further surveys for a continuation of the route from Revere Street towards Eliot Circle. The commission will report later to the Legislature, as required by the act, presenting plans and estimates for the construction of said continuation.

There are many complications and many conflicting interests to be considered in selecting a location for this road. It must be determined upon which side of the Revere Beach & Lynn Railroad Company's tracks the road is to be located, and what land must be taken for the purpose. The commission negotiated during the summer with the officials representing the Boston & Maine Railroad, with a view to securing a part of the railroad's land for the proposed highway purposes. It has only within a few weeks received a reply to the effect that it was probable that some arrangement could be made with the railroad company whereby part of its location could be used for the new highway.

The commission is now actively engaged in endeavoring to determine the values of land upon various routes which might be selected, and hopes to be able to make a layout, and advertise for bids for the work sometime in the spring.

It seems probable that beyond Revere Street a location can be secured, without too great an expense, which will be convenient for through travel going to East Boston, without interfering seriously with the use of the beach and parkway and the congested roads adjoining the parkway. The beach is used by tremendous numbers of pleasure seekers, notably women and children, the electric cars are filled to overflowing, and the streets are crowded with people on all pleasant days in the summer. It therefore seems desirable to the commission, if it can be brought about for any reasonable sum of money, and also best in the interest of public safety, that the through traffic road should be located far enough from the parkway so that it will not interfere with the people who desire to go upon the beach.

#### *Lowell-Lawrence River Road.*

By chapter 647 the Legislature of 1912 instructed the commission to lay out and construct a State highway along the line of the street railway on the north side of the Merrimack River,



beginning at the boundary line between the city of Lowell and the town of Dracut, and continuing to the point where said road intersects Lowell Street in the town of Methuen, and appropriated \$75,000 for that purpose. This road is in the towns of Dracut and Methuen and in the counties of Middlesex and Essex, and is the one which the county commissioners of the respective counties were directed a few years ago to lay out and construct.

The county commissioners built a good gravel road, 18 feet in width, on the Essex County end of the road in the town of Methuen. The road in the town of Dracut was in extremely bad condition; in many places there was not sufficient drainage, in many others it needed a foundation, and in quite a few places there was not sufficient width for the construction of a proper road with adequate drainage. In order to secure the necessary width, in some cases the banks had to be excavated, heavy cuts made, expensive retaining walls built, and in other places the street railway company had to move its poles and tracks. It is probable that the whole amount of money appropriated will be needed for the construction of the road mentioned in the act.

Considerable time was occupied in making necessary surveys and studies, also in negotiation with the street railway company. A contract has been made for the construction of the road, and the work is now well under way. The commission is building a bituminous macadam road, the hard surface being 18 feet in width, and having a 3-foot gravel shoulder on each side. It is hoped that the road will be completed early in the summer of 1913.

#### *Salisbury Beach Road.*

By chapter 454 of the Acts of 1912 the commission was authorized and directed to lay out a highway over the marshes or between said marshes and Salisbury Beach from the New Hampshire line to Broadway, the main road leading from Salisbury Centre to the ocean.

The act required that all the necessary rights of way, etc., should be provided without expense to the commission, and that three permanent easements for public rights of way, each 40 feet in width, should be provided, leading from said highway to the ocean, the same to be located at convenient points along said highway, and not less than 2,500 feet nor more than 3,500 feet apart.

The sum of \$15,000 was appropriated for the purpose of building this road.

The Legislature of 1912 established the Salisbury Beach Reservation Commission, to which the right was given to take land upon and back of the beach. Both the highway commission and the reservation commission have been working jointly in this connection, the latter commission having secured all the land and rights of way necessary for the construction of the highway, and also the rights of way leading from said highway to the beach.

Arrangements have also been made with the street railway company for the necessary changes in its track location, and for the furnishing and delivery of gravel upon the line of the highway to be built.

A contract has been made for the road construction, the terms of which require the work to be completed by June 15, 1913. The contract provides for the construction of a gravel road of adequate width, that being the best which could be made with the money available. The use of some dust layer or bituminous binder on the road will undoubtedly be necessary in the immediate future.

The Salisbury Beach Reservation Commission thought it would be desirable to have the road built of sufficient width, and of gravel, making the best road that could be built for the money available, leaving the question of further improving the surface to be taken up by the Board when it became necessary.

### *Newburyport Turnpike.*

This is one of the main lines between Boston and the pleasure resorts in the northern part of Massachusetts and in Maine and New Hampshire. It is one of the old stage routes, and like so many of the old turnpikes was laid out in a straight line, passing over the tops of most of the hills. Such roads, however, properly surfaced, have no terrors for modern motor vehicles.

During the past three years the commission has widened, graded and improved this road, doing the work in 8 towns; the allotments made by the commission from the motor vehicle fees fund amounting to \$26,598, while the town of Danvers has contributed \$389.73, the town of Rowley \$500, and the town of Newbury \$1,175.35, making a total of \$28,663.08, for which  $26\frac{3}{4}$  miles of

road have been improved, the surface being of gravel. A portion of the road was oiled last year.

The city of Melrose co-operated in this work by macadamizing the short section of the turnpike located within the limits of that city.

The use of the road trebled as soon as the people learned of the good condition of the whole 27 miles of this road, and it will continue to increase in the future.

The commission hopes that all the towns will now co-operate and do their fair share towards keeping this improved road in good condition.

#### *Provincetown Road.*

During the year 1912 the commission continued the work on the road to Provincetown, in the towns of Wellfleet and Truro.

The whole road has now been graded and widened, all bad grades on the hills have been reduced, and the surface of the road has been much improved by using an asphaltic oil with sand, the only available material.

Those portions of the road not laid out as a State highway have been treated with oil and are now in reasonably good condition for travel, although more work will be necessary in the near future to put the whole road in good condition.

The entire road from Barnstable to Provincetown is now perfectly passable and is much used by automobiles, whereas only two years ago it was almost impossible for even a high-powered automobile to get over the worst hills without assistance, and many miles of the road were very sandy and badly rutted.

The Legislature by chapter 416 of the Acts of 1911 made \$500 a year available for use on the road in Truro, along the Beach.

The commission has allotted \$22,745 from the motor vehicle fees fund for use on this road in the last three years, \$9,500 having been allotted in 1912. With the money allotted about 8 miles of road have been improved.

#### TREES ON STATE HIGHWAYS.

##### *Insect Pests.*

In 1912, as for the past few years, the work of suppressing insect pests on all State highways east of the city of Worcester has been done under the direction of the State Forester, Mr. F.

W. Rane, the field work being under the immediate direction of Mr. George A. Smith, gypsy moth superintendent.

In 37 towns west of that city the spraying was done under the direction of Mr. E. W. Breed, the forester of the commission.

The results obtained have in general been most satisfactory.

Spraying was required in a number of localities to prevent the ravages of the elm-leaf beetle. This pest has made spraying necessary in many places where it was not required to prevent damage by the gypsy and brown-tail moths.

Mr. Rane's report appears in Appendix C.

#### *Forester's Department.*

The work of preventing the ravages of insect pests west of the city of Worcester was in charge of the forester of the commission, Mr. E. W. Breed. He also had charge of the trees upon the State highways and the planting of new trees and shrubs. His report will be found in Appendix C.

During the last nine years 16,242 trees were planted on the borders of the State highways in 65 towns, over 1,000 having been planted in 1912.

In that year 781 trees had to be replaced, there being only a 5 per cent. loss.

The commission has continued its policy of planting quick-growing trees and hedges to replace guard rails, as it believes this will not only improve the looks of the roadsides but will prove economical as well, as guard rails need continual painting and the decay of the posts is quite rapid.

Early in the season Mr. Breed, after a faithful service of eight years, asked to be relieved of his duties. The commission also decided to abandon the nursery it formerly maintained, and to secure its trees elsewhere.

It expects to be able to make some arrangement with the State Forester, whereby that department will take charge of the trees on the State highways, including not only the care of the old trees but the securing and setting out of new ones.

#### TRAFFIC CENSUS.

The commission believes that it is most important to have an accurate knowledge of the traffic which any particular road has to carry.

The road must be so designed, built and maintained that it shall be at all times in proper condition to bear the traffic to which it may be subjected, and not only at the least cost to the user, but also at the least ultimate cost to the taxpayers, taking everything into account, viz., interest, sinking fund, yearly maintenance and occasional resurfacing.

### *Knowledge of Traffic Necessary.*

Without that knowledge one is really entirely at sea. The road builder is likely to make serious and costly errors by determining upon the wrong kind of construction and by selecting improper or unsuitable materials or methods.

### *Traffic Census on Roads in Massachusetts in 1909 and in 1912.*

The Massachusetts Highway Commission in 1909 had a census taken upon the State highways at 238 stations, scattered throughout the State; and in 1912 a similar traffic count made at 156 stations.

While the count in 1912 was taken at fewer points than in 1909, it was felt that the percentages of increase and decrease could safely be used to indicate the traffic on other similar roads.

A traffic census was also taken at the same time at quite a number of points around the city of Boston on roadways in the metropolitan and Boston park systems.

The time and method of counting was identical at all points, and the full returns and methods will be found in our annual report for 1909, and in the Appendix to this report.

### *How the Census was made.*

The vehicles actually passing on the road were counted by observers who were engaged for the purpose. All vehicles were counted for fourteen hours a day (7 A.M. to 9 P.M.) for 7 consecutive days in August, 1909, and again for 7 days in October, 1909, at 238 stations, the daily census at each station being tabulated on a card.

This same census was made again for like periods of time in August and October of this year (1912).

At a few important points a count was also made at night, the census at these places covering the whole twenty-four hours.

*Tabulation and Computation.*

After the cards were received the number of vehicles observed at each point was tabulated and computed to show the average number of each class of vehicle passing the given point per day, the total number of vehicles and the total of each class, both motor and horse-drawn.

When these figures were obtained the percentage of each class of vehicle using the particular road was computed, and the percentage of the total of each class at all stations was computed as well.

After these averages were computed for each of the 238 stations in 1909 and for the 156 stations in 1912, the total average number of vehicles at all the various stations was added, the numbers ascertained, and from this was obtained the average number of vehicles passing each day at all the points where the count was made, as well as the average number of each class and kind, and the percentage that the vehicles of each class bore to the average total number.

*Increases and Changes in Traffic from 1909 to 1912.*

In Massachusetts the traffic using our roads is constantly increasing, but it is changing much more rapidly than it is increasing. This is conclusively shown by the following table:—

	1909 CENSUS, 238.5 STATIONS.			1912 CENSUS, 156.5 STATIONS.			Increase or Decrease (Per Cent.).
	Average Total Number per Day.	Average Number per Day per Station.	Percentage of Each Class.	Average Total Number per Day.	Average Number per Day per Station.	Percentage of Each Class.	
<b>Motors: —</b>							
Runabouts, . . .	4,958.5	20.8	8.5	5,819.0	37.2	11	+79
Touring cars, . . .	17,950.5	75.3	30.5	27,178.5	173.5	49	+130
Trucks, . . .	—	—	—	1,800.0	11.5	3	—
Total, . . .	22,909.0	96.1	39.0	34,797.5	222.2	63	+131
<b>Horse-drawn vehicles: —</b>							
1-horse, light, . . .	17,033.0	71.5	29.0	8,380.0	53.5	15	—25
1-horse, heavy, . . .	11,762.5	49.3	20.0	7,458.0	47.6	14	—3
2 or more horses, light, . . .	1,006.0	4.2	2.0	556.0	3.6	1	—14
2 or more horses, heavy, . . .	6,205.5	26.0	10.+	3,870.5	24.7	7	—5
Total horse-drawn, . . .	36,007.0	151.0	61.0	20,264.5	129.4	37	—14
Totals of all kinds, . . .		247.1			351.6		+42

The above-mentioned figures represent a traffic count taken in 1909 and 1912 for fourteen days in each year, and from 7 A.M. to 9 P.M. on each day.

The total number of vehicles using the road has increased 42 per cent. in three years, a notable increase in traffic, surely.

This is not the most significant feature for the roadman, however. The change in the traffic is what he must consider and prepare for.

Motor vehicles have increased in numbers on the average 131 per cent., from 96 to 222 a day; on the other hand, the teams have decreased on the average 14 per cent., from 151 to 129 a day, making the net increase only 42 per cent.

Here, again, one does not realize all the factors until one analyzes still further; light single-horse vehicles have decreased 25 per cent., two-horse light vehicles, 14 per cent., while heavy single-horse teams have only decreased 3 per cent., and heavy teams with two or more horses have decreased only 5 per cent.

#### *Motor Trucks.*

Equally interesting for the future may be the fact that while there were almost no motor trucks in 1909, in 1912 there was an average of over 11 per station per day, or about 3 per cent. of the total traffic in numbers and much more in weight. What will it be in the near future? That is one of the questions which must be answered. The increase in motor trucks between the census taken in August and that taken in October was notable. The average number of vehicles at each station decreased 72 a day or 18 per cent., while the number of motor trucks actually increased 4 per cent. In one town there was an average of only one truck a day in August, while in October there were 27. In another town there were 27 a day in August and 49 in October.

One must realize that the count is taken all over the State, in the country towns as well as near cities, and the 11 trucks is merely an average at all the 156 stations.

On the State highways near the cities there were often found from 50 to 75 trucks a day, and usually from 15 to 30. On some roads motor trucks constituted over 16 per cent. of the total number of vehicles and actually outnumbered touring cars.

Merely to illustrate, it might be stated that on some of the roads there were 2,100 to 2,400 vehicles daily, and on many there were 800 to 1,000, and yet the average for the whole 156 stations was about 350.

*Pleasure Traffic around Boston.*

The census near Boston in the parks may be interesting, but it must be remembered that it is, in many instances, light pleasure traffic. The following figures relate to the census taken in August, 1912: —

*Metropolitan Parks (Mostly Pleasure Vehicles).*

	Total of All Vehicles.	Motor Vehicles.	Motor to Total Traffic (Per Cent.).
Lynn, Prescott Place and Shore Reservation, .	1,530	1,411	92
Revere, Saugus River bridge, . . . . .	1,872	1,808	97
Somerville, Alewife Brook bridge, . . . . .	491	474	97
Medford, Parkway and Main Street, . . . . .	515	492	95
Somerville, Wellington bridge, . . . . .	2,528	2,174	86
Milton, Mattapan bridge, . . . . .	2,383	1,717	72
Medford, Malden River bridge, . . . . .	1,884	1,848	98

*Boston Parks (All Classes of Vehicles).*

Prince Street, Jamaica Plain, . . . . .	1,934	1,715	89
Commonwealth Avenue, a city residential street, .	3,009	2,634	88
Washington Street, a suburban city avenue, . .	1,109	671	60

At the last two points there were, daily, 247 and 296 heavy teams.

*Traffic at Night.*

The commission had a count made for twenty-four hours a day at a few points, and the result shown in the following table may be interesting: —



*Day and Night, Twelve Hours Each, October, 1912.*

	AUTOMOBILES.		VEHICLES (ALL KINDS).		Total Vehicles.	Percent- age at Night.
	Day.	Night.	Day.	Night.		
Lexington, . . .	302	59	438	104	542	19
Watertown, . . .	373	72	671	141	812	17
Chelsea, . . .	103	10	358	53	411	13
Somerville, . . .	266	70	689	231	920	25
Boston, . . .	358	69	513	94	607	15

Several night and day counts for the two years were computed to get an average, and it was found that on the average the night traffic constituted about 18 per cent. of the total traffic; consequently about 22 per cent. should be added to the fourteen-hour day count to ascertain the total number of vehicles passing in the twenty-four hours.

*Increase in Travel caused by building a Good Road.*

In some instances this is caused more by a diversion of travel from other roads in the neighborhood than it is by creating a new and pleasant route; in other places it is because a new and pleasant route is furnished, and, of course, always both causes enter in more or less.

Naturally, automobiles have brought in traveling, and put many places upon the map which were not there before, especially in New York and New England, where the woods, lakes, mountains and seashore furnish the great recreation and vacation resorts for the whole country.

*A Few Specific Instances to illustrate.*

There are two or more routes from Boston, along the North Shore and to Maine and New Hampshire.

In the town of Salisbury, on the main line to the large New Hampshire resorts, the new and better road has increased the travel in part, and the increase in touring has also increased the traffic.

In 1909 there was an average of 185 vehicles a day passing over this road; in 1912, 586, — an increase of 217 per cent. in three years.

Automobiles had increased from an average of 135 a day to 405, or 200 per cent., and heavy teams from 25 to 97, or 288 per cent.

At the same time on the same route in North Beverly and Hamilton, where the roads were equally good, in 1909 and 1912 the increase in travel was 34 and 74 per cent. The total number of vehicles at all three points in 1912 was not very different. Salisbury with a good road had merely caught up.

Another illustration which probably indicates a diversion to another route because of the building of a new road is the Newburyport Turnpike, from Boston to Newburyport. This route is hilly, and in 1909 it was in very bad order, very rough and narrow, with many holes and rocks, and bumps the whole length.

During the last three years the commission has been improving the road, working in 8 towns, over 26 miles of road, and using a part of the motor vehicle fees fund on it, making a reasonably good gravel road at an expense so far of about \$1,000 a mile.

Taking points on this route, which is the shortest and most direct between Boston and Newburyport: At Lynnfield there were only 81 vehicles a day in 1909, while in 1912 there were 333, an increase of 300 per cent. Automobiles had increased from 34 to 249 a day. At a point farther away from Boston on this same route in 1909 there was an average of from 6 to 7 teams a day, and 6 to 7 automobiles; a total of 13 vehicles a day.

In 1912 after the road had been improved there were 29 teams instead of an average of 6 a day, and 80 automobiles in place of 6. The total number of vehicles had increased from 13 a day to 108, — seven times as many vehicles to-day use that road daily.

This travel will more than double in a short time, as soon as the road condition becomes known and it is routed in the automobile books. Then it will have to be oiled, and it is to be hoped the automobile fees will be sufficient for this kind of work. On many of these through routes the towns are poor and cannot possibly afford to oil their roads. Many times, also, as in the case of this road, the through route is of no interest to the town or its inhabitants; no one lives on it.

*Weight of Traffic an Important Consideration.*

After all, it is not numbers which tell the story, it is weight, and it is not weight alone but the vehicle by which it is transported, whether by horses or by motor.

It is not the tractive power alone that makes the difference, but the tires which support the vehicle; whether iron or rubber comes in contact with the road; whether the vehicle is pulled over the road or propels itself, and thus pulls upon the road surface. All of these considerations are probably not so important on many road surfaces as the actual weight imposed upon the road per inch width of tire resting upon the road.

*Narrow Tires cause Most Damage.*

In other words, heavy loads supported upon narrow iron tires, having a weight of over 600 to 800 pounds for each inch in width of the tire, do vastly more damage to most, if not all of our roads than do very much heavier loads where the weight per inch width of tire is less.

Such loads carried on such narrow tires will practically destroy any road surface, except a pavement, in a few months if there are many such vehicles using the road every day.

*How to determine the Weight of Traffic.*

After careful study they have adopted in England an assumed weight, or coefficient, for each kind of vehicle using the roads, in order to make a fair comparison of the traffic upon different roads where the traffic varies, and to more nearly show what the road must support. It is quite similar to the formula in use in France and on the Continent.

It is therefore used both for want of a better one and also because it gives a fair basis of comparison. The following table shows the weight of the road traffic on Massachusetts roads computed in this way, with the coefficient reduced to tons of 2,000 pounds each in every case, both on the English and Massachusetts roads:—

*Weight of Traffic on Massachusetts Roads.*

	1909.			1912.		
	Average Number per Day per Station.	Assumed Weight (Tons).	Weight per Day per Station (Tons).	Average Number per Day per Station.	Assumed Weight (Tons).	Weight per Day per Station (Tons).
Motors: —						
Runabouts, . . . .	20.8	1.43	29.7	37.2	1.43	53.2
Touring cars, . . . .	75.3	2.23	167.9	173.5	2.23	386.9
Trucks, . . . .	—	6.25	—	11.5	6.25	71.9
Totals, . . . .	96.1	—	197.6	222.2	—	512.0
Horse-drawn vehicles: —						
One horse, light, . . . .	71.5	.36	25.7	53.5	.36	19.3
One horse, heavy, . . . .	49.3	1.12	55.2	47.6	1.12	53.3
Two or more horses, light, . .	4.2	.54	2.3	3.6	.54	1.9
Two or more horses, heavy, . .	26.0	2.46	64.0	24.7	2.46	60.8
Totals, . . . .	151.0	—	147.2	129.4	—	135.3
Totals of all kinds, . . . .	247.1	—	344.8	351.6	—	647.3

Here, again, not only are the changes in traffic notable but the weights are even more important.

The average weight per station per day of the motor vehicles in 1909 was 197 tons; in 1912 it was 512 tons. For horse-drawn vehicles it was 147 tons in 1909 and only 135 tons a day in 1912.

The weight of automobile traffic has increased 160 per cent. in three years, while the weight of horse-drawn vehicles has actually decreased 8 per cent. in the same time. While this is true, note what happened: the motor truck has come in with an average number of trucks of  $11\frac{1}{2}$  per station, and their weight is nearly 72 tons a day. The weight of teams decreased 12 tons a day; trucks came in with a weight of 72 tons a day, making good the loss in team weight six times over.

*Some English Traffic.*

A comparison may be of interest, and so below are printed some traffic statistics taken in 1911 on the main roads in the county of East Sussex, in England, at 101 stations, and in the county of Kent, at 47 stations.

*County of East Sussex, 101 Stations.*

	Average Total Number per Day.	Average Number per Day per Station.	Per Cent.	Average Total Weight per Day (Tons).	Average Weight per Station (Tons).
Motors, . . . . .	9,115	90.2	47.5	} 38,850	384.7
Horse-drawn vehicles, . . .	10,087	99.9	52.5		
Totals, . . . . .	19,202	190.1	100.0		

*County of Kent, 47 Stations.*

	Average Total Number per Day.	Average Number per Day per Station.	Per Cent.	Average Total Weight per Day (Tons).	Average Weight per Station (Tons).
Motors, . . . . .	5,171	110.0	39.8	} 29,844.6	635
Horse-drawn vehicles, . . .	7,825	166.5	60.2		
Totals, . . . . .	12,996	276.5	100.0		

The following are two facts of considerable interest:—

*First.*—Motor vehicles constituted only from 40 to 47 per cent. of the English traffic in 1911, whereas they made up 63 per cent. of Massachusetts traffic in 1912, while in 1909 they were 39 per cent. of Massachusetts traffic.

*Second.*—In total weight of traffic the roads in the county of East Sussex, England, had about the same average weight per station as did the Massachusetts roads in 1909 (384 tons and 344, respectively), whereas the county of Kent in 1911 had a little less weight of traffic per station than Massachusetts roads had in 1912 (635 tons in Kent, 647 tons in Massachusetts).

*Width of Roadway a Vital Consideration.*

The width of the roadway must be taken into consideration, as it is manifest that what wears out a road is the actual weight and volume of traffic that has to be sustained by each inch in width of the road surface.

Consequently, some tables have been prepared showing the assumed actual weight in tons, per day, passing over each yard in width of the macadam roadway on certain roads in Massachusetts.

A teaming road was selected near Boston (Medford); a teaming road in Shrewsbury near Worcester (population, 150,000); one road at a popular seashore resort (Beverly East); a main

through line with local travel also 20 miles from Boston (Beverly North); a station 10 miles from Boston (Weston) on the through line to Worcester, with some local travel; and a second station (Quincy) on a fairly heavily traveled road leading into Boston.

For purposes of comparison a like table of the traffic upon the London Folkestone Road, one of the main roads in England, leading into London is included. This table was made to show what the traffic was over the piece of road the English Road Board selected on which to place the many experimental pieces of road which are being built and are to be carefully measured to show actual wear upon the roads. It was selected as a typical, heavily traveled, English main road, — heavily suburban travel, not city traffic.

*Table showing Comparison of Weights per Yard Width of Carriage Way on Roads leading into Boston, Mass., from Road Traffic Census of 1909 and 1912.*

*Shrewsbury (Observation Station No. 310) on Worcester-Boston Road.*

CLASSIFICATION OF VEHICLES.	Average Number of Vehicles per Day.	Assumed Average Weight of Vehicles.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1912.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1909.	Increase or Decrease (Per Cent.).	Remarks.
<i>Motor Vehicles.</i>						
Runabouts, . . .	76.0	1.43	21.7	9.0	+141	Carriage way 15 feet.
Touring cars, . . .	407.5	2.23	181.7	87.4	+108	
Trucks, . . .	17.0	6.25	21.2	-	-	
<i>Horse-drawn Vehicles.</i>						
One horse:—						
Light vehicles, . .	64.0	0.36	4.6	7.1	—35	
Heavy vehicles, . .	60.5	1.12	13.6	20.9	—35	
Two or more horses:—						
Light vehicles, . .	4.5	.54	0.5	0.4	+25	
Heavy vehicles, . .	36.0	2.46	17.7	29.5	—40	
Totals, . . .	665.5	-	261.0	154.3	+69	

*Table showing Comparison of Weights per Yard Width of Carriage Way on Roads leading into Boston, Mass., from Road Traffic Census of 1909 and 1912 — Continued.*

*Medford-Somerville (Observation Station No. 342) on Boston-Lawrence Road.*

CLASSIFICATION OF VEHICLES.	Average Number of Vehicles per Day.	Assumed Average Weight of Vehicles.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1912.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1909.	Increase or Decrease (Per Cent.).	Remarks.	
<i>Motor Vehicles.</i>							
Runabouts, . . .	44.5	1.43	6.8	1.8	+278	Carriage way 28 feet.	
Touring cars, . . .	121.5	2.23	29.0	12.9	+125		
Trucks, . . .	49.0	6.25	32.8	-	-		
<i>Horse-drawn Vehicles.</i>							
One horse:—							
Light vehicles, . .	47.5	.36	1.8	1.9	—5		
Heavy vehicles, . .	198.5	1.12	23.8	18.6	+28		
Two or more horses:—							
Light vehicles, . .	2.0	.54	.1	.5	—80		
Heavy vehicles, . .	183.5	2.46	48.4	28.9	+67		
Totals, . . .	636.5	-	142.7	64.6	+121		

*Beverly (East) (Observation Station No. 331) on Beverly-Manchester Road.*

Motor Vehicles.						Carriage way 18 feet.
Runabouts, . . . .	163.0	1.43	38.8	30.7	+26	
Touring cars, . . . .	849.0	2.23	315.5	246.8	+28	
Trucks, . . . .	56.5	6.25	58.8	-	-	
Horse-drawn Vehicles.						
One horse:—						
Light vehicles, . . .	274.5	.36	16.5	26.2	—37	
Heavy vehicles, . . .	118.5	1.12	22.1	29.3	—25	
Two or more horses:—						
Light vehicles, . . .	29.5	.54	2.7	5.2	—48	
Heavy vehicles, . . .	70.5	2.46	28.9	40.2	—28	
Totals, . . . .	1561.5	-	483.3	378.4	+27	

*Table showing Comparison of Weights per Yard Width of Carriage Way on Roads leading into Boston, Mass., from Road Traffic Census of 1909 and 1912 — Continued.*

*Weston (Observation Station No. 344) on Waltham-Marlborough Road.*

CLASSIFICATION OF VEHICLES.	Average Number of Vehicles per Day.	Assumed Average Weight of Vehicles.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1912.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1909.	Increase or Decrease (Per Cent.).	Remarks.	
<i>Motor Vehicles.</i>							
Runabouts, . . . .	115.0	1.43	27.4	18.4	+49	Carriage way 18 feet. October census only.	
Touring cars, . . . .	533.0	2.23	198.1	95.5	+108		
Trucks, . . . .	30.0	6.25	31.2	-	-		
<i>Horse-drawn Vehicles.</i>							
One horse: —							
Light vehicles, . . . .	167.0	.36	10.0	13.0	—23		
Heavy vehicles, . . . .	98.0	1.12	18.3	20.5	—11		
Two or more horses: —							
Light vehicles, . . . .	5.0	.54	.4	.7	—43		
Heavy vehicles, . . . .	59.0	2.46	24.2	28.7	—16		
Totals, . . . .	1007.0	-	319.6	176.8	+81		

*Natick (West) (Observation Station No. 345) on Framingham-Boston Road.*

Motor Vehicles.						Carriage way 18 feet. October census only.
Runabouts, . . . .	42.0	1.43	10.0	4.3	+132	
Touring cars, . . . .	240.0	2.23	89.2	34.9	+155	
Trucks, . . . .	20.0	6.25	20.8	-	-	
Horse-drawn Vehicles.						
One horse:—						
Light vehicles, . . . .	41.0	.36	2.5	2.1	+19	
Heavy vehicles, . . . .	61.0	1.12	11.4	8.0	+42	
Two or more horses:—						
Light vehicles, . . . .	1.0	.54	.1	.3	—67	
Heavy vehicles, . . . .	22.0	2.46	9.0	5.3	+70	
Totals, . . . .	427.0	-	143.0	54.9	+160	



*Table showing Comparison of Weights per Yard Width of Carriage Way on Roads leading into Boston, Mass., from Road Traffic Census of 1909 and 1912 — Continued.*

*Beverly (North) (Observation Station No. 332 B) on Wenham-Beverly Road.*

CLASSIFICATION OF VEHICLES.	Average Number of Vehicles per Day.	Assumed Average Weight of Vehicles.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1912.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1909.	Increase or Decrease (Per Cent.).	Remarks.	
<i>Motor Vehicles.</i>							
Runabouts, . . . .	83.0	1.43	19.8	18.6	+6	Carriage way 18 feet.	
Touring cars, . . . .	342.0	2.23	127.1	73.2	+74		
Trucks, . . . .	46.0	6.25	47.9	-	-		
<i>Horse-drawn Vehicles.</i>							
One horse:—							
Light vehicles, . . .	73.0	.36	4.4	7.7	—43		
Heavy vehicles, . . .	108.0	1.12	20.2	17.9	+13		
Two or more horses:—							
Light vehicles, . . .	5.0	.54	.4	1.1	—64		
Heavy vehicles, . . .	116.5	2.46	47.8	27.7	+72		
Totals, . . . .	773.5	-	269.6	146.2	+84		

*Quincy (East) (Observation Station No. 403) on Boston-South Shore Road.*

<i>Motor Vehicles.</i>						Carriage way 32 feet.
Runabouts, . . .	114.0	1.43	15.3	14.8	+3	
Touring cars, . . .	467.0	2.23	97.6	47.9	+103	
Trucks, . . . .	38.5	6.25	22.6	-	-	
<i>Horse-drawn Vehicles.</i>						
One horse: —						
Light vehicles, . .	45.0	.36	1.5	3.0	—50	
Heavy vehicles, . .	216.5	1.12	22.7	20.5	+11	
Two or more horses: —						
Light vehicles, . .	.5	.54	-	.1	-	
Heavy vehicles, . .	104.5	2.46	24.1	20.4	+18	
Totals, . . .	986.0	-	183.8	106.7	+72	

*Table showing Comparison of Weights per Yard Width of Carriage Way on Roads leading into Boston, Mass., from Road Traffic Census of 1909 and 1912 — Concluded.*

*London-Folkestone Road (between London County Boundary and Sidcup).*

CLASSIFICATION OF VEHICLES.	Average Number of Vehicles per Day.	Assumed Average Weight of Vehicles.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1912.	Total Weight in Tons per Yard Width of Carriage Way per Day. Census, 1909.	Increase or Decrease (Per Cent.).	Remarks.
<i>Motor Vehicles.</i>						
Not including cycles, omnibuses, lorries or traction engines, . . .	130.6	1.83	34.1	-	-	Carriage way 21 feet. 6 A.M. to 6 A.M.
Lorries, omnibuses, traction engines, . . .	151.9	6.25	135.6	-	-	
<i>Horse-drawn Vehicles.</i>						
One horse: —						
Light vehicles, . . .	104.9	.36	5.4	-	-	
Heavy vehicles, . . .	19.3	1.12	3.1	-	-	
Two or more horses: —						
Light vehicles, . . .	82.9	.54	6.4	-	-	
Heavy vehicles, . . .	247.1	2.46	86.8	-	-	
	736.7	-	271.4	-	-	

### *Kind of Traffic.*

A careful study and comparison will show several interesting things.

*First.* — The English travel in numbers does not differ very materially from ours; we often have more.

*Second.* — The weight carried per yard width in Massachusetts is sometimes more and sometimes less; not so very different.

*Third.* — It is in the kind of traffic carried that the greatest difference appears. This is most significant.

Lorries, traction engines, omnibuses, motor trucks, on the English road, constitute one-half of the total weight carried per yard width of roadway. One-half of the total traffic is carried by heavy self-propelled vehicles, and often on iron tires, whereas on our roads that traffic is only a very small percentage of the

total, just about 10 per cent. instead of 50 per cent., and it is all carried on motor trucks with rubber tires, and none of it on iron tires, — a most important consideration.

*Character and Volume of Traffic affect Both Construction and Maintenance.*

A traffic study is of value only for the purpose of helping the road engineer determine the type of road to build and the best method of maintenance. A few words on this subject may not be out of place.

*Much Motor Traffic makes Binder necessary.*

The experience in Massachusetts and elsewhere has shown conclusively that large numbers of swiftly moving automobiles cannot successfully be carried over a water-bound macadam road or over a gravel road. Such a road becomes raveled very rapidly, rutted and disintegrated.

Our traffic studies indicate that from 50 to 100 automobiles a day make the use of some dust layer or binder necessary. Possibly its use would prove economical on a road where there is even less motor traffic.

Massachusetts State highways seldom have city traffic, as they are located mostly on main roads in the country, although often near the cities and leading into them.

*Bituminous or Other Permanent Construction Economical with Much Team Traffic.*

With the motor traffic which Massachusetts already has, the commission is obliged, both for economy and for efficiency, where a road has heavy team traffic as well, to adopt in construction or resurfacing some form of bituminous mixture for the upper two or three inches of the road surface, at least, or some stronger road, like concrete. In many places the commission believes such construction or reconstruction has been, and will be, economical.

*Automobiles only.*

On the other hand, there are some oiled gravel roads which are satisfactory and very economical if they are constantly and properly maintained, where there are large numbers of swiftly

moving automobiles a day, in the summer months at least, but not many heavy loaded teams. Some of these roads have 500 automobiles or more a day, and yet they are cheaply built and cheaply maintained. The same may be said of some roads built of sand and asphaltic oil, but these roads have very little heavy teaming. Heavy teams and many heavy motor trucks would rut such roads quickly and soon wear them out.

### *Maintenance.*

When the motor vehicle appeared in fair numbers, Massachusetts had from 600 to 700 miles of State highways (there are now 920), and they were mostly water-bound macadam, with some few miles of gravel road.

These highways had been built from one to fourteen years previously, very few miles had been resurfaced, and the commission had only \$100 a mile a year for maintenance and resurfacing, and not that much except for the last few years. The maintenance of these old roads was a trying problem in 1908, and has been ever since.

Automobile travel increased 40 per cent. a year and the total traffic 14 per cent. a year, and these roads must be maintained or the State's money, borrowed on long-time bonds, would be lost and wasted; the good roads would be gone, but the bonds would still remain to be paid.

### *Money necessary.*

First, the necessary money had to be procured. This was obtained from two sources. The State doubled its appropriation, giving \$200,000 a year instead of \$100,000. A larger motor vehicle fee was secured, and the net fees were made available for the maintenance of the roads. These two sources of revenue for the last three years have yielded about \$500,000 a year for the maintenance of State highways instead of \$100,000, — an average of \$450 a mile a year instead of \$100.

### *Bituminous Binders and Dust Layers used.*

Many miles of the old roads have been preserved by spreading a coat of asphaltic oil — light or heavy — or tar over them. To-day some asphaltic binder or dust layer has been used on over

80 per cent. of all the State highways, and the only roads on which it has not been used are those located in the country districts where there is very light traffic. This year the commission used nearly 2,000,000 gallons of bituminous material in construction or maintenance. Over 730 of the 920 miles of State highways have received some form of bituminous treatment. As many miles of road have been resurfaced every year as was compatible with saving all the roads, using, where the traffic was heavy, a bituminous macadam on the top 3 inches.

*Effect of Traffic on Bituminous Surfaces.*

A good many miles of old macadam road have been saved and maintained by one-half gallon of hot asphaltic oil spread upon each square yard of surface and properly covered with sand and pea stone or gravel. These roads have, many of them, worn three years, and in their fourth year are still in good condition. A few miles have worn four years and are now on their fifth year. The patching has cost but little (their treatment and maintenance might average from 2 to 3 cents a square yard a year).

These roads often have very heavy automobile travel, possibly over 1,000 cars a day. They often have large numbers of teams daily. One has over 500 teams and 1,000 automobiles, and a heavy blanket oil surface has worn reasonably well for three years, and will a fourth, with a few exceptional places. This same road also has an average of 55 motor trucks a day.

Near two stations, where the teaming was heavy and excessive, for one-quarter of a mile in each place out of 4 miles the blanket oil failed. It crumbled, went into mud, developed holes and was disappearing. The upper 3 inches have been replaced with an asphaltic bituminous macadam.

*Heavy Horse-drawn Teams cause Failure.*

The traffic study shows that it is not the number of teams, but *heavy* teams — two or more horses, and heavy loads on narrow tires — that cause the failure.

The failure of roads treated with heavy oil has occurred on a few miles of road at certain places where it was clear that heavy horse-drawn teams were responsible.

In two instances it was 50 to 75 ice teams a day, together with

the other teams, carrying 3 tons or more each on  $2\frac{1}{2}$  to 3 inch tires. In a month the oil surface began to crumble and break up on the side of the road on which the loaded teams traveled. It lasted three months on the other side of the road where these teams came back empty.

This same road, treated with the same oil, is still in good condition beyond these ice houses; in one case for 3 miles, in the other for 15 or 16 miles, and the oil is three years old and still only needs patching.

Light, cold oil has been substituted as a dust-layer and has proven reasonably satisfactory, though the stone of course is wearing out, and a bituminous macadam would probably prove economical. One more instance of interest: the Gloucester State highway covered with a hot oil blanket was rutting and wearing out rapidly in 1909. A coal team was passing to some hotels three or four times a day during the summer, carrying 6 or 7 tons of coal on narrow tires. A motor truck was substituted for the coal team, and the surface of the road, which had been oiled, was again in good condition. It has worn three years and now only needs patching.

### *Hot Oil Blanket Surface.*

A hot oil blanket surface, made of a good asphaltic oil, will be economical and will carry large numbers of automobiles at high speeds (over 1,000 a day in summer) for several years; it will carry large numbers of light teams (500 a day), and quite a number of motor trucks (50 or so a day), but will be destroyed by a large number of heavy teams, especially with narrow tires. Fifty or more such teams — farm teams, wood teams or teams on narrow tires — will soon destroy the road surface. A surface coat of a good quality of tar will last satisfactorily under a large amount of automobile travel, but usually it has to be renewed more often than a good quality of oil. It will, however, if of good quality and properly used, stand a large amount of travel if from  $1\frac{1}{2}$  to 2 gallons are incorporated in the top 3 inches of a macadam road.

In all cases it is assumed that all holes and depressions will be filled before tar or oil is used; that the bituminous material will be evenly distributed and sufficiently covered and kept covered

so that it will not pick up; and that all holes that develop are patched at once as soon as they form.

Constant repairs at a cost of 1 to 2 cents a square yard a year will save an expenditure of from 40 cents to \$1 a square yard for the resurfacing of these bituminous surfaces if they are allowed to go to pieces. They will go to pieces in a year or two at the most if not cared for properly.

When these surface treatments fail, as they will where the traffic is extremely heavy, — meaning heavy in weight of vehicles not numbers of vehicles, — then some more permanent form of construction must be selected and the road reconstructed as soon as possible.

Light cold oils, water gas tar, tarvia B and the hundred-and-one different products on the market are used as dust-layers, etc., to prevent motors from raveling roads.

The experience of the commission shows that these materials may be economical and work satisfactorily for small team traffic (30 to 50 a day) and medium automobile traffic (50 to 100 a day), provided the road is not one where high speeds are usual. They may also help to preserve the road from the effect of automobile traffic where the team traffic is too heavy, or the loads are carried on such narrow tires that a hot oil blanket surface will not wear satisfactorily, until money becomes available to resurface the top 3 inches with some form of bituminous macadam.

#### *Conclusions summarized.*

With much hesitation a table has been prepared showing as nearly as may be the results which have been observed after four years of experience with bituminous materials, comparing these results with the traffic going over the road in 1909 and again in 1912.

The commission realizes fully that more experience will undoubtedly cause it to change or modify some of its present opinions, but they are submitted for what they are worth as indicating the result of its experience in Massachusetts.

The standard road is 15 feet in width of macadam, with 3-foot gravel shoulder on each side.

*Average Daily Traffic.*

	Light Teams.	Heavy Teams, One Horse.	Heavy Teams, Two or More Horses.	Auto- mobiles a Day.
A good gravel road will wear reasonably well and be economical with . . . . .	50 to 75	25 to 30	10 to 12	100 to 150
Needs to be oiled with . . . . .	-	-	-	Over 150
Oiled gravel fairly good either hot or heavy cold oil $\frac{1}{2}$ gallon coating (cold oil must be used yearly), . . . . .	75 to 100	30 to 50	20	500 to 700
Water-bound macadam will stand with . . . . .	175 to 200	175 to 200	60 to 80 <sup>1</sup>	- <sup>2</sup>
Dust-layer will prove serviceable on such macadam with . . . . .	-	-	-	50 to 100
Macadam will then stand (but the stone wears, of course) with . . . . .	-	-	-	300 to 500
Water-bound macadam with hot oil blanket coat will be economical with <sup>3</sup> . . . . .	150 to 200	75 to 100	25 to 30	Up to 1,400 <sup>4</sup>
Will stand at least, <sup>5</sup> . . . . .	-	-	-	-
But will crumble and perhaps fail with over . . . . .	-	100 <sup>6</sup>	50 <sup>6</sup>	-

<sup>1</sup> Perhaps more.<sup>2</sup> Not over 75 at high speed.

<sup>3</sup> The large number of automobiles seems to keep the oil rolled down when it would be cut up and crumble without this traffic. Water-bound macadam with a good surface coating of tar will stand a very large number of automobiles, but the commission has not used tar extensively as a surface treatment where there is heavy team travel.

<sup>4</sup> And more with fewer teams.<sup>5</sup> Fifty motor trucks, probably more.<sup>6</sup> On narrow tires; or loaded farm wagons, ice and wood teams, etc.

## EIGHT-HOUR LAW.

The present eight-hour law has resulted in a considerable increase in the cost of all the highway work of this department. It has also resulted in reducing the income of each individual laborer by preventing him from making up time lost by rainy weather or other causes.

The complaints were universal throughout the State in 1912, not only from town officials and contractors, but from the laborers themselves.

It was almost impossible to secure labor in many places, and on several pieces of highway the work was very much delayed, the laborers many times leaving the work and going to other States where they could earn more money by working a greater number of hours per day, even though the rate paid per hour elsewhere was less.



State highway work differs from the ordinary municipal highway work, in that it often involves the securing of all the necessary laborers from points remote from the locality in which the work is to be done, and the establishment of camps for the accommodation of such laborers. Consequently the men have nothing they care to do during the other hours of the day, and prefer to work more hours and thereby earn more money.

Some contractors are now refusing to bid for the building of State highways in Massachusetts because of the trouble in securing laborers and the difficulties that come afterwards on all their other work.

The Massachusetts people pay for the roads. The towns where many of the roads are built under the small town act or with the motor vehicle fees are poor and need every dollar they can get put into the roads. The laborers can earn more money if allowed to work more hours; they want the money and the community needs the roads.

The commission thinks, therefore, that it would be well for the Legislature to consider whether it would not be wise to provide that the laborers working on State highways or in the towns under the small town act or under the provisions of chapter 525, Acts of 1910, should be exempt from the eight-hour law.

#### SUGGESTIONS FOR LEGISLATION.

##### *Motor Trucks and Traction Engines (Weight and Speed).*

The commission renews its recommendation of last year that some law be passed to prevent the undue damage to the highways and bridges in this Commonwealth by the use of traction engines, motor trucks and other extremely heavy vehicles. This traffic is increasing very rapidly, and the rates of speed at which many trucks are run are excessive and decidedly dangerous.

The commission believes that the law should limit the weight of such vehicles and the speed at which they may be moved over the highways. It should also provide that no vehicle or other object having any flange, rib, clamp or other device which will substantially cut into or injure the road surface shall be moved over any highway. The law should limit the kind, character and weight of the vehicle and load.

There are many bridges in this Commonwealth which are absolutely unsafe for use by heavy motor trucks. Many of these bridges are in the smaller and poorer towns which cannot afford to rebuild them at the present time.

Already one bridge on the main line from Boston to Fitchburg has been damaged, this bridge being located between the towns of Ayer and Shirley. The bridge was practically destroyed by a 6-ton motor truck which went over it. Consequently, it had to be closed to all traffic, to the inconvenience of the farmers and all others in that neighborhood, who were obliged to travel a considerable distance to get around the bridge.

Officials in many towns are complaining that roads which they repair are immediately destroyed by heavy motor trucks. Often the damage would not be one-third as great if the trucks were driven at reasonable speed.

Many million dollars a year are being spent in this Commonwealth to secure improved roads, and provision should be made by law to prevent them from destruction. The law should fix some maximum weight per inch width of tire in contact with the ground.

The law should also provide for the issuing of permits allowing heavier weights and vehicles to be moved upon certain designated routes under proper conditions.

#### *Fees.*

Commercial vehicles and motor trucks now travel long distances, and the commission feels that it is only fair that the same fee should be charged for their registration as for automobiles of like horse power. In 1912 the damage done to the roads by trucks was very great in many places.

#### *Speed of Automobiles.*

The number of automobiles using the highways is constantly increasing.

The traffic census taken in 1912 showed that the number of automobiles in operation more than doubled in the past three years. In 1912 there were 12,000 more cars registered than in 1911, an increase of 29 per cent.

The number of accidents also increased, but, unfortunately, the

accidents in many places increased at a faster ratio than the number of automobiles in operation.

The commission feels that this increase of traffic (and it will increase more and more in the future) requires greater care and caution on the part of the operators and of the general public.

It believes, also, that it would prove a great safeguard not only for the public but for the motorists if an absolute maximum speed limit, say 25 miles an hour, were fixed by law. This is a reasonable limit; no sane operator would care to go much faster, and, of course, in actual practice no one is arrested or prosecuted for operating at speeds within a mile or two of the limit.

The margin is too narrow for accurate timing.

There was a noticeable increase in speed in 1912, when the automobiles from other States came into Massachusetts, and it was a common sight to see cars being operated at 35, 40 or 50 miles an hour. Massachusetts roads should not be made race-courses.

Another consideration is that it is only fair to the operators that they should know what they can and what they cannot do. Since the Supreme Court decided, very properly, that a speed in excess of 20 miles an hour was only "*prima facie* evidence" of excessive speed, the newspapers and many of the public maintain that there is no speed limit in Massachusetts. Some of the lower courts have taken the same view of the law, and many operators have been found guilty of reckless operation, or of operating so as to endanger the public, resulting in the revocation of their licenses, when they were merely operating at an excessive rate of speed and really endangering no lives except possibly their own.

Another consideration, and an important one, is that many towns are spending large amounts of money improving their roads; they have not money enough to treat them with oil or tar; and if many automobiles run at high speed over the roads they become rutted and destroyed in a few months, and the money spent in their repair is wasted.

The commission has already approved a 25-mile-an-hour speed limit on the Nahant Beach road, the regulation having been made by the selectmen at the request of the citizens and many owners of automobiles.

The 20-mile-an-hour speed limit in the metropolitan parkways has proven satisfactory.

The commission therefore recommends that a maximum speed limit for motor vehicles be established at 25 miles an hour.

*Penalty for Reckless Driving.*

The commission has been informed by some of the judges and district attorneys that even in cases of extremely reckless and improper operation it is practically impossible to secure convictions on a charge of manslaughter, whereas it is very common to secure convictions for reckless operation, or for operating while under the influence of intoxicating liquor. The difficulty in the way of securing adequate sentences is that the extreme penalty provided by law for reckless operation is only imprisonment for six months, and the judges dislike to impose the maximum sentence.

It has been suggested to the commission that it would be well to change the penalty so as to permit of imprisonment for a longer period of time and thus provide an adequate penalty for cases of extreme recklessness when people are killed.

The commission therefore suggests the passage of such legislation.

*Operators from Other States.*

While the commission believes that the operators from other States should be treated liberally, it does not feel that they should be allowed to continue to operate in this State if they are improper persons, or if they operate improperly. They should have no more rights than Massachusetts operators.

It quite often happens in investigating accidents that an operator from some other State is found to be at fault. This has occasionally happened in death cases.

All the commission can now do is to place the name of the operator upon the blacklist to prevent the issuance of a license to him, and notify the authorities of the State where he resides, but said authorities usually cannot and sometimes will not suspend or revoke the license of the operator in question. In the meantime he is at liberty to operate for ten days in this State unless or until he is convicted in court of some offense.

The commission believes it would be advisable for the Legislature to authorize it to issue a notice suspending the right of a person from another State to operate in this Commonwealth until

he receives a license, under the same conditions and for the same causes for which it suspends or revokes the licenses of Massachusetts operators.

### *Law of the Road.*

The Supreme Judicial Court decided in November, 1912, in the case of *Foster v. Curtis*, that an electric car was a "vehicle" within the meaning of the laws of the road, viz., chapter 54 of the Revised Laws.

The effect of this decision is that, while the electric car is not subject to the law because it cannot turn, a street car is nevertheless *an object of the law*, a vehicle that all other vehicles must pass on the right or the left according to whether they are meeting or passing the car.

Manifestly, it is almost impossible to carry out any such rule in practice, and if adhered to strictly would practically stop all traffic on crowded streets, like Boylston Street in Boston, in the busy hours when the street cars are often blocked. It is also inconsistent with the Boston traffic rules which require drivers of vehicles to proceed near the curb on their right-hand side.

If all vehicles are to pass to the left of electric cars and turn out to do this on a busy double-track road, they immediately meet the electrics coming in the opposite direction and must pass those on the right.

The court itself recognizes the difficulties and says in its opinion, "It is for the Legislature to provide a remedy."

Consequently, the commission recommends the passage of an act to provide that street railway or other cars moving over the streets upon rails shall not be considered "vehicles" for the purposes of laws or regulations affecting the passage of other vehicles upon the highways, as to the way and manner in which they shall pass each other.

### *Maintenance of Roads improved with State Funds.*

There are now in this Commonwealth about 300 miles of road which have been improved under the provisions of the small town act, so called.

The commission has allotted over \$600,000 since money was made available for that purpose, and the towns have contributed

about \$385,000 for building the roads, this money having been used in conjunction with the State funds.

The money contributed by the Commonwealth comes from the bond issue, and yet no adequate provision is made for maintaining these roads in proper condition.

Only too often the town authorities allow them to get out of repair to such an extent that a large part of the money spent by the Commonwealth and the town is lost. Manifestly this is a practice that should be stopped. These roads should be constantly repaired and maintained. Often slight repairs at small cost would save very large expenditures later.

The commission feels that whenever any of the Commonwealth's money is put into the construction or improvement of a road in a town, thereafter that road should be adequately repaired and maintained by the town. The commission should be authorized to notify the town authorities of the repairs necessary, and if they are not made within a reasonable time the commission should be authorized to have such repairs made, funds being made available for that purpose; and the expense of the repairs should be collected from the town by the Treasurer and Receiver General together with the State tax.

The act could provide the maximum amount which the poorer towns would be required to pay in any one year, so that no town would be unduly burdened.

It is certainly grossly extravagant, and a great hardship on the traveling public as well, to allow these roads to become worthless from lack of proper care and to cause the money which built them to become wasted.

The commission therefore recommends the passage of an act to accomplish that purpose.

### *Maintenance of State Highways.*

It is evident that the cost of the maintenance of State highways will increase constantly not only because of an increased mileage but even more because of the large increase in traffic. Many miles of State highway have now been built for more than eight years, and will have to be resurfaced in the immediate future.

Under the present law the Commonwealth collects from the city

or town in which a State highway is located \$50 a mile a year if it is spent, and 25 per cent. is collected from the county in which the highway lies.

Until four years ago there was only \$100 a mile available for the maintenance of State highways, and the State appropriated only \$100,000 a year for this purpose. Now the State appropriates \$200,000 a year and there is \$400,000 available from motor vehicle fees.

The cost of maintaining the roads is over \$500 a mile a year, and will probably be more in the future, certainly until many miles of the older roads on through routes, especially near the cities and larger towns where the traffic is extremely heavy, have been reconstructed with some more permanent surface. In many places the roads should be widened to at least 18 feet to make them safe for the present traffic.

It seems to the commission, therefore, that it would be wise at this time to provide for a more equitable distribution of the cost of this maintenance, putting a larger share on the cities or towns where the highways are located, but grading the amount to be collected per mile so that it will not be an undue burden on any poor town. The commission might be authorized, as it is under the present law, to exempt certain poor towns from any payment when the highway is a through route and the road of little or no value to the town.

There are 125 towns with a valuation of less than \$1,000,000, 77 towns with a valuation of over \$1,000,000 and under \$2,000,000, and 62 towns with a valuation of over \$2,000,000 and less than \$5,000,000.

It would seem fair that the Commonwealth should collect yearly from the cities and towns not more than one-half of the actual cost of such maintenance, but not to exceed \$50 a mile a year in towns with a valuation of under \$1,000,000, not to exceed \$100 a mile a year in towns with a valuation of over \$1,000,000 but under \$2,000,000, and not to exceed \$200 a mile a year in towns with a valuation of \$2,000,000 but less than \$5,000,000, and one-half of the actual cost from the cities or towns whose valuation exceeded \$5,000,000.

Such a charge would tend to equalize the cost of maintaining State highways and would put more nearly a fair share of such

cost upon the municipality particularly benefited. It would also prevent the possibility of the amount collected for such maintenance as a part of the county tax becoming an unfair burden upon the cities and richer towns where very few miles of State highway are built.

Before the road became a State highway the city or town had to pay the entire cost of its maintenance, so it would certainly seem fair that the richer cities and towns should pay one-half.

#### AUTOMOBILE DEPARTMENT.

##### *Fees.*

During the year 1912, 50,132 automobiles and 5,034 motor cycles were registered, an increase of over 29 per cent. in the number of automobiles and over 37 per cent. in the number of motor cycles registered in 1911. In addition to the foregoing there were 1,114 manufacturers' and dealers' registration certificates issued, including 22 motor cycle dealers.

The amount of fees collected for automobiles was \$492,482.50, or an average of \$9.82 for each automobile, the average fee collected in 1911 being \$9.78.

For the 1,114 manufacturers' and dealers' registrations \$27,157.50 was collected. The fees collected for the registration of motor cycles amounted to \$9,644, and the fees collected for operators' licenses, examinations and sundries amounted to \$85,381.

During the year, 14,693 operators' licenses were issued and 32,255 operators' licenses were renewed. The number of chauffeurs' licenses issued was 5,570, and the number of chauffeurs' renewals issued was 14,127. There are, therefore, 66,645 persons licensed to operate automobiles in this State. In 1912 the number of licenses issued was 28 per cent. in excess of those issued in 1911, while the number of automobiles registered increased 29 per cent.

The total amount collected from registration fees, license fees, sundry receipts, interest, etc., was \$616,236.44, an increase of 29 $\frac{2}{3}$  per cent. over the amount collected in 1911. From this amount had to be paid the cost of number plates, salaries of clerks, investigators, examiners, etc., in the automobile department, as well as many other expenses, rebates, etc.



Eighty per cent. of the balance of the money is by law available for the maintenance and repair of State highways, and 20 per cent. is available for the repair, improvement and construction of roads on through routes in towns, under the provisions of chapter 525 of the Acts of 1910.

For further details relating to registrations, licenses, fees, etc., see Appendix B.

### *Examinations for Licenses.*

The examiners of the commission held 7,045 examinations during the fiscal year of 1912. This was an increase of 893 over the preceding year.

Of the 5,936 persons examined, 5,589 finally succeeded in passing the examinations and 347 failed; while in 1911, 4,648 persons were examined, 529 of whom failed to pass. Evidently the chauffeurs are securing more experience than in former years.

In 1912, 1,117 persons failed in their first examination, or about 19 per cent., as against 1,424 who failed in 1911, or 31 per cent. Almost all of the failures were on the road test.

### *Automobile Accidents and Investigations.*

The following table shows the accidents in which automobiles have been involved, of which the commission has had any notice through the press, or otherwise, for the fiscal years of 1911 and 1912:—

<i>Deaths, Injuries, Accidents.</i>	<b>1911.</b>	<b>1912.</b>
Total number killed, . . . . .	110	142
Total number injured, . . . . .	1248	1,962
Total number accidents, . . . . .	1,531	2,441
Total number accidents in daytime, . . . . .	1,098	1,632
Total number accidents after dark, . . . . .	433	809
Total number accidents on country roads, . . . . .	280	495
Total number accidents on city or town streets, . . . . .	1,251	1,946

There were 32 more fatal accidents in 1912 than in 1911, an increase of 29 per cent., while during the same period the number of automobiles registered increased  $29\frac{2}{3}$  per cent., exactly the same percentage. It should be noted that there were 910 more accidents in 1912 than in 1911, an increase of 59 per cent., while the number of automobiles only increased  $29\frac{2}{3}$  per cent. during the same period of time.

This indicates either an increase in carelessness or recklessness on the part of the operators of automobiles or on the part of the general public. In the opinion of the commission there has been an increase in reckless operation. There has certainly been a large increase in the number of persons convicted of operating while under the influence of intoxicating liquor, and also a noticeable increase in speed upon the main roads.

The commission is of the opinion, therefore, that it might be wise for the Legislature to fix an absolute maximum speed limit of 25 miles an hour, which should never be exceeded, even upon country roads.

### *Accidents in the Streets of Boston.*

The police commissioner of the city of Boston publishes in his report the record made by that department of the accidents which occur in the streets of Boston.

As this record is practically complete and certainly impartial, it is of interest, in connection with the automobile accidents, to consider other accidents as well and the relative traffic.

There were in the streets of Boston during the last tabulated year a total of 89 persons killed and 2,653 injured as a result of various accidents; 50 of the deaths and 1,616 of the injuries were due to traffic of various kinds; 39 deaths and 1,037 injuries were due to other causes, the largest number of which (24 deaths and 793 injuries) being due to falls on the sidewalk, from buildings, etc.

Following are the deaths and injuries caused by accidents due to traffic: —

	Deaths.	Injuries.
Teams, bicycles, etc., . . . . .	14	438
Street cars, . . . . .	14	695
Automobiles, . . . . .	22	483

Automobiles were therefore responsible for more deaths than street cars or teams, but caused fewer deaths than the teams and cars together, and less than half as many injuries. There were fewer deaths and vastly fewer injuries caused by automobiles in the streets than were caused by falls of various kinds.

In this connection it will be seen elsewhere in a traffic census taken by the commission that the traffic on the State highways

in Massachusetts has increased over 40 per cent. in three years, and that the motor vehicle traffic has increased over 120 per cent. in the same period.

The following table will illustrate how the nature of the traffic has changed and the volume of it increased during the past three years at several points in and near Boston. The figures given show the average daily traffic, based on a census taken for seven days (of fourteen hours each), in August and again in October in the years 1909 and 1912:—

	1909.		1912.	
	Auto-mobiles.	All Vehicles.	Auto-mobiles.	All Vehicles.
Somerville Parkway, Wellington bridge, . . .	914	1,398	2,046	2,433
Milton, Mattapan bridge, . . . . .	688	1,317	1,825	2,476
Jamaica Plain, Prince and Pond streets, . . .	731	1,075	1,715	1,938
Dorchester, Columbia Road and Washington Street, . . . . .	233	424	769	1,265
Commonwealth Avenue, Boston, near Charlesgate East, . . . . .	2,698	2,743	2,199	2,790

It should be borne in mind that in 1912 the subway was in process of construction on Commonwealth Avenue in the city of Boston and therefore many vehicles were diverted to other streets.

The four other stations are therefore a fairer indication of the increase of travel. At these four stations the average number of automobiles increased from 642 in 1909 to 1,339 in 1912 (more than double), and the average of all vehicles increased from 1,053 to 2,028.

#### *Court Abstracts.*

During the year 1912, 3,670 abstracts of court records were received from the courts, as against 3,322 in 1911. These came from 75 of the 83 courts of the Commonwealth. Only 8 courts failed to send in abstracts in 1912, while in 1911 the number was 15.

The abstracts show that 2,853 persons were convicted of violations of the automobile law; 176 were found not guilty, 353 cases were appealed, 731 complaints were placed on file and 107 were

*not prossed.* In 13 cases the defendants were defaulted and in 16 they were committed to imprisonment. The complaints were as follows:—

For murder, . . . . .	1
For manslaughter, . . . . .	2
For overspeeding, . . . . .	759
For reckless operating, . . . . .	169
For operating while intoxicated, . . . . .	113
For using automobile without authority, . . . . .	49
For operating in a race, . . . . .	2
For endangering lives and safety of public, . . . . .	40
For failing to stop after causing injury, . . . . .	25
For improper display or no register number, . . . . .	83
For operating without a license, . . . . .	274
For operating without carrying registration certificates, . . . . .	67
For operating an unregistered motor vehicle, . . . . .	46
For refusing to stop when signalled by officer, . . . . .	67
For operating with unlighted lamps, . . . . .	447
For violations of park rules, . . . . .	212
For failing to give signal when approaching intersecting way, . . . . .	1026
For miscellaneous offences, . . . . .	358

The abstracts show that \$31,272 was imposed as fines, \$1,941 for violations of the metropolitan park rules and \$2,465.82 for costs of court. Of course, all of this amount was not, necessarily, collected, as many cases were appealed.

For further details see Appendix B.

### *Special Regulations.*

Eight hearings were held on special regulations made by the municipal authorities of Ashfield, Cambridge, Chelsea, Duxbury, Egremont, Nahant and Williamstown affecting the use and operation of motor vehicles on particular roads or ways.

The following is a synopsis of the special regulations now in effect throughout the State:—

*Boston.*—Motor vehicles are excluded from Franklin Park and the Arnold Arboretum, except on Glen Road and the road from Forest Hills Street to the entrance to Forest Hills Cemetery in said Franklin Park.

On Commonwealth Avenue, between Arlington Street and the Ericson statue, and between Beacon Street and Brighton Avenue, motor vehicles traveling in either direction shall use the driveway on the right of the parkway only.

On Commonwealth Avenue, between Brighton Avenue and Warren Street, motor vehicles shall use the middle driveway only, except for the purpose of going in the nearest way to some building between said Brighton Avenue and said Warren Street.

Every motor vehicle when stopped upon any road or driveway shall be at the side of the road and as near as possible to the curb or gutter, and with its machinery at rest, and no motor vehicle shall be left standing for more than twenty minutes.

*Falmouth.* — Automobiles are excluded from the Nobska Road, so called, between the lighthouse property and its junction with the Shore Road, just beyond the underpass under the railroad.

*Haverhill.* — Motor vehicles are excluded from all roads in Winnikenni Park.

*Marblehead.* — Beach Street, from Atlantic Avenue to Ocean Street, is a one-way street, and automobiles may pass in said street in but one direction, viz., southeasterly, from Atlantic Avenue to Ocean Street.

*Milton.* — Automobiles are excluded from Churchill's Lane, Harland Street, and from that portion of Forrest Street which comes under the jurisdiction of the board of selectmen.

*Newton.* — Motor vehicles are excluded from the way upon the northerly side of Commonwealth Avenue from the Boston line to the Charles River, except to cross at an intersecting street or to go from the southerly way on Commonwealth Avenue to a residence upon the northerly side thereof by the shortest route.

*Plymouth.* — Motor vehicles are excluded from Morton Park.

*Sharon.* — Motor vehicles are excluded from Tolman Street, Pine Street and Furnace Street from Wolomolopoag Street to the Foxborough line.

*Southborough.* — Automobiles are excluded from Chestnut Hill Road from Bent garage, also Lovers' Lane, and Pine Hill Road from Clements Road north to Framingham and Marlborough line.

*Swampscott.* — Automobiles are excluded from that portion of Monument Square, west of the monument, between the easterly end of Burrill Street and Humphrey Street in said Swampscott, from the southerly to the northerly end thereof. Said road or way is a one-way road, and automobiles and all other vehicles are excluded therefrom, except for travel along said way, from the northerly to the southerly end thereof.

*Williamstown.* — Motor vehicles are excluded from Stone Hill Road, Bee Hill Road, Oblong Road, Petersburg Road, Torrey Road, Woodcock Road, Sloane Road, Luce Road, Stratton Road, Blair Road and Roaring Brook Road.

*Duxbury.* — Automobiles are excluded from the so-called Gurnet bridge, leading from Powder Point to Duxbury Beach.

*Chelsea.* — Between the hours of 6 A.M. and 12 P.M., all vehicles, including motor vehicles, traveling in an easterly direction in Chelsea Square, between Williams Street and Cross Street, shall pass to the south of the

parks therein, and when traveling in an easterly direction on Broadway between Cross Street and Bellingham Street shall pass on the southerly side thereof.

Between the hours of 6 A.M. and 12 P.M. all vehicles, including motor vehicles, traveling in a westerly direction on Broadway between Bellingham Street and Cross Street, shall pass on the northerly side thereof and when traveling in a westerly direction in Chelsea Square between Cross Street and Williams Street, shall pass to the north of the parks therein.

*Nahant.* — No person shall operate a motor vehicle for any distance at a rate of speed exceeding 25 miles per hour upon the highway leading from Nahant to Lynn, known as the Nahant Road, between the boundary of Nahant and Lynn and the intersection of Spring Road.

### *Automobile Hearings.*

These hearings are held either upon complaints or as a result of investigations made by the commission's investigators, or at the request of the operators whose licenses have been suspended or revoked. Such hearings have occupied the entire day on Wednesday of each week and often other days in the week as well. During the past year the commission held 289 such public hearings, while in 1911 there were 240.

In addition to these hearings the commission receives every week a large number of reports of investigations made by its five investigators. These are read and acted upon by the commissioners. There were 595 such reports made in 1912 as against 504 in 1911.

In 1912 the commission's investigators prosecuted 42 operators in the courts.

During the year 18 operators or chauffeurs were placed on probation by the Board and were required to report regularly for a certain period, at intervals of a month or so, to some particular officer.

Of the persons so placed on probation 13 reported regularly, and 5 had their licenses taken away for failure to keep the terms of their probation.

### *Suspension and Revocation of Licenses.*

The following summary shows the action taken by the commission in the various cases in 1911 and 1912, and the causes of said action: —

*Action taken on Formal Complaints after Hearing.*

	1911.	1912.
Licenses revoked, . . . . .	4	7
Licenses suspended, . . . . .	11	17
Registration certificate cancelled, . . . . .	1	—
Complaints placed on file, . . . . .	8	9
Complaints dismissed, . . . . .	8	6
Operators cautioned, . . . . .	3	12
	<hr/>	<hr/>
Total hearings on formal complaints, . . . . .	35	51

*Suspensions and Revocations.*

	1911.	1912.
Licenses revoked, . . . . .	95	190
Licenses suspended, . . . . .	254	325
Licenses cancelled, . . . . .	3	—
Registration certificates suspended or revoked, . . . . .	2	6
Dealer's registration certificate suspended, . . . . .	1	—
Motor cycle registration certificates revoked, . . . . .	5	14
Motor cycle registration certificates suspended, . . . . .	—	11
	<hr/>	<hr/>
Total suspensions and revocations, . . . . .	360	546

Suspensions and revocations resulting from court convictions, . . . . .	75	182
Suspensions and revocations after hearings on formal complaints, . . . . .	15	24
Suspensions and revocations after investigation, on which hearings were given in some cases, . . . . .	270	340
	<hr/>	<hr/>
	360	546

*Causes of Suspensions and Revocations.*

	1911.	1912.
Reckless operation, . . . . .	41	99
Operating while under influence of intoxicating liquor, . . . . .	14	56
Refusing or neglecting to stop after accident, . . . . .	8	17
Accidents resulting in death, . . . . .	95	115
Improper operation, . . . . .	137	152
Three overspeeding convictions, . . . . .	2	1
Operating automobile without owner's permission, . . . . .	24	23
Improper person, . . . . .	21	48
Other offences, . . . . .	18	35
	<hr/>	<hr/>
	360	546

*Deaths.*

In 1912 there were 135 accidents in Massachusetts resulting in 142 deaths, and 4 accidents which occurred in other States and in which Massachusetts operators were involved, resulting in 4 deaths, making a total of 139 fatal accidents investigated by the commission, with a total of 146 deaths. In 3 of these cases motor vehicles were only remotely involved, 2 of the deaths being primarily due to heart failure and 1 to tuberculosis. They were therefore not considered as accidents in which motor vehicles were directly involved. In 7 cases 2 operators were involved, making a total of 143 operators whose cases were considered. These were disposed of as follows, the figures for 1911 being also given:—

	1911.	1912.
Registration certificate revoked, the owner having no license, . . . . .	1	—
Licenses revoked, . . . . .	15	28
Motor cycle registration certificates revoked, . . . . .	2	—
Licenses suspended, and reinstated after investigation and hearing, . . . . .	62	64
Licenses suspended, final hearings pending, . . . . .	14	22
Motor cycle registration certificate suspended, final hearing pending, . . . . .	1	—
No action, because operator had no Massachusetts license, . .	10	10
No action, because operator was unknown, . . . . .	—	4
No action, because of death of operator, . . . . .	5	15
	<hr/> 110	<hr/> 143

The number of deaths in 1912 increased 30 per cent. over those in 1911, and in the same period the number of automobiles increased  $29\frac{2}{3}$  per cent., — about the same ratio.

## EXPENDITURES.

The following is a summary of the expenditures of the Massachusetts Highway Commission from Dec. 1, 1911, to Nov. 30, 1912:—



## CONSTRUCTION EXPENDITURES.

TOWN OR CITY.	Amount.	Totals.
<i>Barnstable County.</i>		
Barnstable, . . . . .	\$129 66	
Bourne, . . . . .	9,560 99	
Brewster, . . . . .	12 91	
Chatham, . . . . .	11 62	
Dennis, . . . . .	316 29	
Eastham, . . . . .	323 76	
Falmouth, . . . . .	218 02	
Harwich, . . . . .	302 63	
Mashpee, . . . . .	10,530 21	
Orleans, . . . . .	4 52	
Sandwich, . . . . .	8,370 26	
Yarmouth (north), . . . . .	3 87	
Yarmouth (south), . . . . .	5 17	
		\$29,789 91
<i>Berkshire County.</i>		
Adams, . . . . .	\$0 50	
Becket, . . . . .	23 63	
Cheshire, . . . . .	1 61	
Hancock, . . . . .	4 52	
Lee, . . . . .	3 88	
Lenox, . . . . .	5 16	
Lanesborough, . . . . .	5,966 46	
North Adams, . . . . .	3 40	
Pittsfield, . . . . .	8 72	
Richmond, . . . . .	3 88	
Stockbridge, . . . . .	3 88	
Sheffield, . . . . .	3,306 21	
Williamstown, . . . . .	4 19	
		9,336 04
<i>Bristol County.</i>		
Dighton, . . . . .	\$8,733 52	
Raynham, . . . . .	10,687 04	
Rehoboth, . . . . .	1,419 52	
Seekonk, . . . . .	7,036 50	
Somerset, . . . . .	95 36	
Taunton, . . . . .	2,166 64	
Westport, . . . . .	4,271 91	
		34,410 49
<i>Dukes County.</i>		
Chilmark, . . . . .	\$4,195 97	
		4,195 97
<i>Essex County.</i>		
Amesbury, . . . . .	\$5,329 28	
Andover, . . . . .	7 75	
Essex, . . . . .	97 76	
Gloucester, . . . . .	68 27	
<i>Amounts carried forward, . . . . .</i>	\$5,503 06	\$77,732 41

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amounts brought forward,</i> . . .	\$5,503 06	\$77,732 41
Hamilton, . . . . .	2 58	
Haverhill, . . . . .	6,859 28	
Ipswich, . . . . .	756 27	
Middleton, . . . . .	2,041 73	
Newbury, . . . . .	41 81	
North Andover, . . . . .	13,553 28	
Rockport, . . . . .	1,850 79	
Rowley, . . . . .	2,806 38	
Salisbury, . . . . .	15,289 06	
		48,704 24
<i>Franklin County.</i>		
Deerfield, . . . . .	\$3,824 40	
Erving, . . . . .	10,084 32	
Gill, . . . . .	1,910 82	
Greenfield, . . . . .	25	
Montague, . . . . .	1,996 85	
Northfield, . . . . .	17,265 04	
Orange, . . . . .	3 88	
Whately, . . . . .	302 09	
		35,387 65
<i>Hampden County.</i>		
Agawam, . . . . .	\$277 83	
Brimfield, . . . . .	25	
Chester, . . . . .	899 81	
Chicopee, . . . . .	25	
Holyoke, . . . . .	1 32	
Monson, . . . . .	1 94	
Palmer, . . . . .	9 36	
Russell, . . . . .	25	
Westfield, . . . . .	6 78	
West Springfield, . . . . .	52 00	
Wilbraham, . . . . .	3 55	
		1,253 34
<i>Hampshire County.</i>		
Amherst, . . . . .	\$0 25	
Easthampton, . . . . .	3 53	
Granby, . . . . .	25	
Hadley, . . . . .	5 49	
Hatfield, . . . . .	2,195 64	
Huntington, . . . . .	25	
Northampton, . . . . .	4,653 43	
South Hadley, . . . . .	18,109 20	
Ware, . . . . .	451 91	
		25,419 95.
<i>Middlesex County.</i>		
Acton, . . . . .	\$8,324 90	
Ashby, . . . . .	10,993 76	
<i>Amounts carried forward,</i> . . .	\$19,318 66	\$188,497 59

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amounts brought forward,</i> . . .	\$19,318 66	\$188,497 59
Ashland, . . . . .	166 70	
Chelmsford, . . . . .	3,857 30	
Framingham, . . . . .	171 63	
Holliston, . . . . .	6,912 76	
Lexington, . . . . .	37	
Littleton, . . . . .	27 61	
Lowell, . . . . .	7 76	
Marlborough, . . . . .	3,571 60	
Natick, . . . . .	11 62	
North Reading, . . . . .	676 41	
Pepperell, . . . . .	881 64	
Reading, . . . . .	7 76	
Stoneham, . . . . .	7 76	
Townsend, . . . . .	667 32	
Tyngsborough, . . . . .	9,549 44	
Westford, . . . . .	7,097 93	
Wilmington, . . . . .	95 29	
Woburn, . . . . .	6,481 14	
<i>Norfolk County.</i>		59,510 70
Franklin, . . . . .	\$8,167 74	
Norfolk, . . . . .	5 16	
Norwood, . . . . .	5 17	
Plainville, . . . . .	198 20	
Walpole, . . . . .	615 96	
Wellesley, . . . . .	7 75	
Westwood, . . . . .	5 16	
Weymouth, . . . . .	427 31	
Wrentham, . . . . .	2,388 80	
<i>Plymouth County.</i>		11,821 25
Abington, . . . . .	\$1,490 10	
Lakeville, . . . . .	15,419 51	
Marshfield, . . . . .	149 79	
Middleborough, . . . . .	3,920 98	
Plymouth, . . . . .	19,758 97	
Scituate, . . . . .	6 46	
Wareham, . . . . .	6 35	
<i>Worcester County.</i>		40,752 16
Ashburnham, . . . . .	\$9,966 48	
Athol, . . . . .	3 88	
Auburn, . . . . .	18 39	
Barre, . . . . .	50	
Blackstone, . . . . .	29 60	
Brookfield, . . . . .	2,153 26	
Charlton, . . . . .	3,286 39	
<i>Amounts carried forward,</i> . . .	\$15,458 50	\$300,581 70

CONSTRUCTION EXPENDITURES — *Concluded.*

TOWN OR CITY.	Amount.	Totals.
<i>Amounts brought forward,</i> . . .	\$15,458 50	\$300,581 70
Fitchburg, . . . . .	7 43	
Gardner, . . . . .	3 88	
Grafton, . . . . .	13,382 73	
Leicester, . . . . .	12 26	
Milford, . . . . .	149 55	
Northborough, . . . . .	1,417 77	
Oxford, . . . . .	1 29	
Paxton, . . . . .	561 68	
Princeton, . . . . .	6 46	
Shrewsbury, . . . . .	90 66	
Southbridge, . . . . .	25	
Spencer, . . . . .	2,545 30	
Sterling, . . . . .	12,783 36	
Sturbridge, . . . . .	25	
Templeton, . . . . .	3 23	
Uxbridge, . . . . .	2,230 73	
Warren, . . . . .	83 57	
Webster, . . . . .	12,053 51	
West Brookfield, . . . . .	5 81	
Westminster, . . . . .	3 87	
Worcester, . . . . .	25	
		60,802 34
		\$361,384 04

## EXPENDITURES UNDER "SMALL TOWN" ACTS.

[Chapter 47, Revised Laws, and Chapter 279, Acts of 1908.]

Alford (two allotments), . . . . .	\$532 87
Ashburnham, . . . . .	1,000 00
Becket (three allotments), . . . . .	898 72
Bedford, . . . . .	1,500 00
Berlin, . . . . .	352 13
Bernardston, . . . . .	500 00
Bolton (two allotments), . . . . .	650 00
Boxford, . . . . .	600 00
Burlington (two allotments), . . . . .	3,683 99
Carlisle, . . . . .	400 00
Charlemont (two allotments), . . . . .	1,000 00
Chester (two allotments), . . . . .	175 07
Chesterfield (two allotments), . . . . .	27 28
Conway (two allotments), . . . . .	1,000 00
Dana (two allotments), . . . . .	725 00
Dracut, . . . . .	2,000 00
Dunstable, . . . . .	400 00
Eastham (two allotments), . . . . .	675 96
East Longmeadow, . . . . .	1,000 00
Florida (two allotments), . . . . .	640 60
Framingham, . . . . .	4,000 00
Georgetown, . . . . .	100 00
Granville, . . . . .	275 00
Groveland, . . . . .	1,000 00
Hampden (three allotments), . . . . .	850 00
Hancock (two allotments), . . . . .	408 39
Hanson, . . . . .	1,000 00
Hardwick, . . . . .	3,000 00
Hatfield, . . . . .	1,500 00
Heath, . . . . .	350 00
Hinsdale (two allotments), . . . . .	1,500 00
Holland, . . . . .	390 00
Hopkinton, . . . . .	1,850 00
Hudson, . . . . .	1,000 00
Leverett (two allotments), . . . . .	1,000 00
Leyden, . . . . .	400 00
Mendon (two allotments), . . . . .	900 00
Middlefield (three allotments), . . . . .	444 06
Middleton, . . . . .	400 00
Monroe (two allotments), . . . . .	600 00
Monterey (three allotments), . . . . .	913 95

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*Amount carried forward,* . . . . . \$39,643 02

<i>Amount brought forward,</i>	\$39,643 02
Montgomery,	364 00
Mt. Washington,	17 28
New Marlborough (two allotments),	927 82
New Salem,	450 00
Norfolk,	175 00
North Reading,	2,500 00
Norwell,	600 00
Oakham (three allotments),	1,627 94
Otis (two allotments),	567 92
Oxford,	1,500 00
Pelham (two allotments),	650 00
Pembroke,	875 45
Peru (two allotments),	440 00
Phillipston (three allotments),	1,200 00
Plainfield (two allotments),	385 32
Reading (two allotments),	1,874 24
Rehoboth,	1,200 00
Richmond,	69 12
Rochester,	850 00
Rockland,	1,000 00
Sandisfield (two allotments),	147 08
Savoy,	590 00
Sheffield,	500 00
Shrewsbury (two allotments),	1,221 57
Shutesbury (two allotments),	534 85
Southampton,	7 03
Southbridge,	2,725 00
Southwick (two allotments),	1,000 00
Tolland (four allotments),	821 60
Tyringham (two allotments),	690 56
Washington (four allotments),	1,320 73
Wayland,	1,449 50
Wendell (two allotments),	650 00
Westhampton,	17 28
West Stockbridge (two allotments),	800 00
Windsor,	500 00
Worthington (two allotments),	733 07
	<hr/>
	\$70,625 38

## REPAIR AND MAINTENANCE EXPENDITURES.

[Under Chapter 287 of the Acts of 1912.]

TOWN OR CITY.	Amount.	Totals.
<i>Barnstable County.</i>		
Barnstable, . . . . .	\$1,490 60	\$14,816 27
Bourne, . . . . .	1,105 06	
Brewster, . . . . .	1,359 02	
Chatham, . . . . .	1,210 23	
Dennis, . . . . .	1,458 38	
Eastham, . . . . .	282 86	
Falmouth, . . . . .	2,915 49	
Harwich, . . . . .	1,363 09	
Mashpee, . . . . .	14 34	
Orleans, . . . . .	703 78	
Provincetown, . . . . .	231 90	
Sandwich, . . . . .	512 22	
Truro, . . . . .	619 83	
Wellfleet, . . . . .	452 34	
Yarmouth (north), . . . . .	331 08	
Yarmouth (south), . . . . .	766 05	
<i>Berkshire County.</i>		
Adams, . . . . .	\$684 00	29,208 86
Becket, . . . . .	2,274 51	
Cheshire, . . . . .	2,305 48	
Clarksburg, . . . . .	975 60	
Dalton, . . . . .	569 48	
Great Barrington, . . . . .	726 46	
Hancock, . . . . .	2,501 45	
Hinsdale, . . . . .	265 12	
Lanesborough, . . . . .	780 36	
Lee, . . . . .	2,757 91	
Lenox, . . . . .	5,288 80	
North Adams, . . . . .	1,497 42	
Pittsfield, . . . . .	5,392 41	
Richmond, . . . . .	490 38	
Stockbridge, . . . . .	1,965 16	
Williamstown, . . . . .	415 07	
Windsor, . . . . .	319 25	
<i>Bristol County.</i>		
Acushnet, . . . . .	\$537 08	
Attleborough, . . . . .	582 88	
Berkley, . . . . .	7 77	
Dartmouth, . . . . .	827 27	
Dighton, . . . . .	575 66	
Easton, . . . . .	88 92	
Fairhaven, . . . . .	187 87	
Freetown, . . . . .	654 48	
<i>Amounts carried forward, . . . . .</i>	\$3,461 93	\$44,025 13

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amounts brought forward,</i> . . .	\$3,461 93	\$44,025 13
Mansfield, . . . . .	285 53	
North Attleborough, . . . . .	744 20	
Norton, . . . . .	265 11	
Raynham, . . . . .	161 86	
Rehoboth, . . . . .	708 74	
Seekonk, . . . . .	828 46	
Somerset, . . . . .	882 40	
Swansea, . . . . .	678 92	
Taunton, . . . . .	489 00	
Westport, . . . . .	805 83	
		9,311 98
<i>Dukes County.</i>		
Chilmark, . . . . .	\$347 75	
Edgartown, . . . . .	107 12	
Oak Bluffs, . . . . .	96 50	
Tisbury, . . . . .	349 75	
West Tisbury, . . . . .	17 06	
		918 18
<i>Essex County.</i>		
Amesbury, . . . . .	\$345 04	
Andover, . . . . .	762 68	
Beverly, . . . . .	2,928 64	
Essex, . . . . .	63 06	
Gloucester, . . . . .	1,975 60	
Groveland, . . . . .	250 52	
Hamilton, . . . . .	1,082 31	
Haverhill, . . . . .	946 02	
Ipswich, . . . . .	1,051 85	
Lawrence, . . . . .	506 60	
Lynn, . . . . .	262 65	
Merrimac, . . . . .	212 79	
Methuen, . . . . .	1,187 03	
Newbury, . . . . .	353 57	
Newburyport, . . . . .	216 32	
North Andover, . . . . .	1,513 09	
Rockport, . . . . .	320 93	
Rowley, . . . . .	524 34	
Salem, . . . . .	589 50	
Salisbury, . . . . .	428 41	
Saugus, . . . . .	363 13	
Swampscott, . . . . .	732 22	
Wenham, . . . . .	972 12	
West Newbury, . . . . .	753 00	
		18,341 42
<i>Amount carried forward,</i> . . .		\$72,596 71



REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amount brought forward, . . .</i>		\$72,596 71
<i>Franklin County.</i>		
Ashfield, . . . . .	\$343 27	
Bernardston, . . . . .	795 63	
Buckland, . . . . .	1,060 48	
Charlemont, . . . . .	285 87	
Colrain, . . . . .	573 28	
Deerfield, . . . . .	1,068 76	
Erving, . . . . .	1,218 14	
Greenfield, . . . . .	593 99	
Montague, . . . . .	591 56	
Northfield, . . . . .	267 78	
Orange, . . . . .	890 93	
Shelburne, . . . . .	615 78	
Sunderland, . . . . .	95 99	
Whately, . . . . .	707 10	
		9,108 56
<i>Hampden County.</i>		
Agawam, . . . . .	\$926 10	
Brimfield, . . . . .	397 99	
Chester, . . . . .	2,468 11	
Chicopee, . . . . .	2,163 52	
East Longmeadow, . . . . .	329 92	
Monson, . . . . .	471 15	
Palmer, . . . . .	3,801 76	
Russell, . . . . .	1,768 15	
Wales, . . . . .	21 48	
West Springfield, . . . . .	515 19	
Westfield, . . . . .	2,257 92	
Wilbraham, . . . . .	1,189 96	
Holyoke, . . . . .	1,578 66	
		17,889 91
<i>Hampshire County.</i>		
Amherst, . . . . .	\$202 60	
Belchertown, . . . . .	350 46	
Easthampton, . . . . .	521 29	
Goshen, . . . . .	87 95	
Granby, . . . . .	731 62	
Hadley, . . . . .	1,308 25	
Hatfield, . . . . .	432 09	
Huntington, . . . . .	717 67	
Northampton, . . . . .	542 40	
South Hadley, . . . . .	2,125 27	
Southampton, . . . . .	99 57	
Ware, . . . . .	605 01	
Williamsburg, . . . . .	781 52	
		8,505 70
<i>Amount carried forward, . . .</i>		\$108,100 88

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amount brought forward, . . .</i>		\$108,100 88
<i>Middlesex County.</i>		
Acton, . . . . .	\$687 55	
Ashby, . . . . .	182 08	
Ashland, . . . . .	357 57	
Bedford, . . . . .	178 11	
Billerica, . . . . .	214 80	
Boxborough, . . . . .	1,075 93	
Burlington, . . . . .	942 90	
Chelmsford, . . . . .	751 28	
Concord, . . . . .	1,614 42	
Dracut, . . . . .	142 81	
Framingham, . . . . .	522 50	
Groton, . . . . .	294 50	
Holliston, . . . . .	888 35	
Hudson, . . . . .	236 07	
Lexington, . . . . .	1,182 14	
Lincoln, . . . . .	864 84	
Littleton, . . . . .	245 41	
Lowell (north), . . . . .	387 24	
Lowell (south), . . . . .	255 17	
Lowell (east), . . . . .	48 30	
Marlborough, . . . . .	934 91	
Medford, . . . . .	678 53	
Melrose, . . . . .	104 93	
Natick, . . . . .	796 34	
Newton, . . . . .	510 95	
North Reading, . . . . .	236 40	
Reading, . . . . .	504 19	
Pepperell, . . . . .	257 73	
Somerville, . . . . .	868 09	
Stoneham, . . . . .	305 01	
Sudbury, . . . . .	962 84	
Tewksbury, . . . . .	896 04	
Townsend, . . . . .	968 88	
Tyngsborough, . . . . .	1,138 25	
Watertown, . . . . .	269 20	
Wayland, . . . . .	670 72	
Westford, . . . . .	527 86	
Weston, . . . . .	10,586 91	
Wilmington, . . . . .	439 49	
Winchester, . . . . .	897 28	
Woburn, . . . . .	651 26	
		34,277 78
<i>Amount carried forward, . . .</i>		\$142,378 66

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amount brought forward, . . .</i>		\$142,378 66
<i>Nantucket County.</i>		
Nantucket, . . . . .	\$155 66	155 66
<i>Norfolk County.</i>		
Bellingham, . . . . .	\$301 44	
Braintree, . . . . .	1,170 21	
Canton, . . . . .	293 82	
Cohasset, . . . . .	779 97	
Dedham, . . . . .	18 73	
Dover, . . . . .	372 11	
Foxborough, . . . . .	891 26	
Franklin, . . . . .	405 57	
Holbrook, . . . . .	74 64	
Milton, . . . . .	2,242 98	
Needham, . . . . .	278 48	
Norfolk, . . . . .	128 65	
Norwood, . . . . .	107 97	
Plainville, . . . . .	308 37	
Quincy, . . . . .	988 92	
Randolph, . . . . .	105 40	
Sharon, . . . . .	40 28	
Stoughton, . . . . .	312 62	
Walpole, . . . . .	309 85	
Wellesley, . . . . .	478 17	
Westwood, . . . . .	65 26	
Weymouth, . . . . .	5,316 10	
Wrentham, . . . . .	366 58	15,357 38
<i>Plymouth County.</i>		
Abington, . . . . .	\$440 39	
Bridgewater, . . . . .	480 36	
Brockton, . . . . .	429 54	
Duxbury, . . . . .	671 48	
Hanover, . . . . .	216 79	
Hingham, . . . . .	281 57	
Kingston, . . . . .	209 62	
Lakeville, . . . . .	583 40	
Marion, . . . . .	467 57	
Marshfield, . . . . .	1,189 48	
Mattapoisett, . . . . .	348 84	
Middleborough, . . . . .	403 75	
Pembroke, . . . . .	55 09	
Plymouth, . . . . .	780 60	
<i>Amounts carried forward, . . .</i>	\$6,558 48	\$157,891 70

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	Amount.	Totals.
<i>Amounts brought forward,</i> . . .	\$6,558 48	\$157,891 70
Rochester, . . . . .	384 92	
Rockland, . . . . .	278 86	
Scituate, . . . . .	1,430 84	
Wareham, . . . . .	723 34	
West Bridgewater, . . . . .	466 80	
Whitman, . . . . .	178 68	
<i>Suffolk County.</i>		10,021 92
Chelsea, . . . . .	\$271 16	
Revere (east), . . . . .	443 85	
Revere (west), . . . . .	265 97	
Boston, . . . . .	1,229 49	
<i>Worcester County.</i>		2,210 47
Athol, . . . . .	\$332 75	
Auburn, . . . . .	9,245 89	
Barre, . . . . .	690 49	
Blackstone, . . . . .	526 99	
Brookfield, . . . . .	945 91	
Charlton, . . . . .	1,164 15	
Douglas, . . . . .	153 61	
Dudley, . . . . .	272 08	
Fitchburg, . . . . .	842 11	
Gardner, . . . . .	1,262 66	
Grafton, . . . . .	422 63	
Hardwick, . . . . .	117 19	
Harvard, . . . . .	386 50	
Holden, . . . . .	786 01	
Lancaster, . . . . .	84 59	
Leicester, . . . . .	1,083 50	
Leominster, . . . . .	619 81	
Lunenburg, . . . . .	1,488 48	
Milford, . . . . .	506 29	
Millbury, . . . . .	602 65	
New Braintree, . . . . .	30 78	
North Brookfield, . . . . .	154 20	
Northborough, . . . . .	1,012 72	
Oxford, . . . . .	453 12	
Paxton, . . . . .	956 33	
Phillipston, . . . . .	411 16	
Princeton, . . . . .	29 59	
Rutland, . . . . .	77 58	
Shrewsbury, . . . . .	1,250 71	
Southborough, . . . . .	455 06	
Southbridge, . . . . .	775 79	
<i>Amounts carried forward,</i> . . .	\$27,141 33	\$170,124 09

REPAIR AND MAINTENANCE EXPENDITURES — *Concluded.*

TOWN OR CITY.	Amount.	Totals.
<i>Amounts brought forward,</i> . . .	\$27,141 33	\$170,124 09
Spencer, . . . . .	507 16	
Sterling, . . . . .	719 79	
Sturbridge, . . . . .	611 75	
Sutton, . . . . .	269 01	
Templeton, . . . . .	952 18	
Uxbridge, . . . . .	1,322 21	
Warren, . . . . .	1,404 86	
Webster, . . . . .	78 14	
Westborough, . . . . .	289 37	
West Boylston, . . . . .	348 22	
West Brookfield, . . . . .	626 70	
Westminster, . . . . .	2,069 30	
Winchendon, . . . . .	613 25	
Worcester, . . . . .	1,609 35	
		38,562 62
		\$208,686 71

## EXPENDITURES FOR REPAIRS OF STATE HIGHWAYS.

*Motor Vehicle Fees Fund.*

[Under Chapter 534, Acts of 1909.]

Abington, . . . . .	\$4,479 25
Acushnet, . . . . .	2,769 34
Adams, . . . . .	6 80
Agawam, . . . . .	6,956 98
Andover, . . . . .	6,377 56
Athol, . . . . .	7,027 81
Attleborough, . . . . .	704 63
Auburn, . . . . .	924 28
Barnstable, . . . . .	5,067 11
Becket, . . . . .	14 00
Bedford, . . . . .	307 89
Bellingham, . . . . .	2,157 95
Beverly, . . . . .	10,934 85
Blackstone, . . . . .	116 82
Bourne, . . . . .	640 32
Boxborough, . . . . .	1,248 29
Braintree, . . . . .	2,710 81

*Amount carried forward,* . . . . . \$52,444 69



<i>Amount brought forward,</i>							\$168,147 49
Huntington,	.	.	.	.	.	.	1,570 91
Ipswich,	.	.	.	.	.	.	336 03
Kingston,	.	.	.	.	.	.	210 33
Lakeville,	.	.	.	.	.	.	1,570 55
Lancaster	.	.	.	.	.	.	662 37
Lawrence,	.	.	.	.	.	.	10 50
Lee,	.	.	.	.	.	.	511 16
Leicester,	.	.	.	.	.	.	4,595 21
Lenox,	.	.	.	.	.	.	23,298 02
Leominster,	.	.	.	.	.	.	488 83
Lexington,	.	.	.	.	.	.	291 78
Lincoln,	.	.	.	.	.	.	18 50
Littleton,	.	.	.	.	.	.	11,327 94
Lowell,	.	.	.	.	.	.	1,041 21
Lunenburg,	.	.	.	.	.	.	1,446 63
Marion,	.	.	.	.	.	.	184 28
Marlborough,	.	.	.	.	.	.	2,139 76
Marshfield,	.	.	.	.	.	.	1,763 57
Mattapoisett,	.	.	.	.	.	.	6,053 49
Medford,	.	.	.	.	.	.	1,066 60
Methuen,	.	.	.	.	.	.	13 48
Middleborough,	.	.	.	.	.	.	1,497 47
Milford,	.	.	.	.	.	.	2 00
Millbury,	.	.	.	.	.	.	156 36
Milton,	.	.	.	.	.	.	274 17
Montague,	.	.	.	.	.	.	1,255 80
Nantucket,	.	.	.	.	.	.	676 91
Needham,	.	.	.	.	.	.	357 25
Newbury,	.	.	.	.	.	.	2,384 00
Newburyport,	.	.	.	.	.	.	748 16
Newton,	.	.	.	.	.	.	59 00
Norfolk,	.	.	.	.	.	.	54 71
North Adams,	.	.	.	.	.	.	178 51
Northampton,	.	.	.	.	.	.	371 75
North Andover,	.	.	.	.	.	.	219 35
North Attleborough,	.	.	.	.	.	.	1,399 70
Northborough,	.	.	.	.	.	.	635 38
North Reading,	.	.	.	.	.	.	1,488 34
Norton,	.	.	.	.	.	.	624 15
Norwood,	.	.	.	.	.	.	406 45
Oak Bluffs,	.	.	.	.	.	.	247 13
Orange,	.	.	.	.	.	.	8,827 48

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*Amount carried forward,* . . . . \$248,612 71

<i>Amount brought forward,</i>	. . . . .	\$248,612 71
Orleans,	. . . . .	918 86
Oxford,	. . . . .	20 00
Palmer,	. . . . .	13 15
Phillipston,	. . . . .	150 00
Pittsfield,	. . . . .	2,034 91
Plainville,	. . . . .	406 59
Plymouth,	. . . . .	1,585 49
Provincetown,	. . . . .	2,684 59
Quincy,	. . . . .	4,499 39
Randolph,	. . . . .	528 32
Reading,	. . . . .	2,300 38
Rehoboth,	. . . . .	337 57
Richmond,	. . . . .	2,363 90
Rochester,	. . . . .	1,781 95
Rockland,	. . . . .	1,410 79
Rockport,	. . . . .	380 15
Rowley,	. . . . .	2,146 70
Russell,	. . . . .	139 16
Salisbury,	. . . . .	697 43
Sandwich,	. . . . .	4,906 74
Scituate,	. . . . .	1,083 83
Seekonk,	. . . . .	973 15
Shelburne,	. . . . .	173 44
Shrewsbury,	. . . . .	627 43
Somerset,	. . . . .	2,943 84
Somerville,	. . . . .	842 19
Southbridge,	. . . . .	481 70
South Hadley,	. . . . .	834 27
Spencer,	. . . . .	611 60
Sterling,	. . . . .	1,021 83
Stoneham,	. . . . .	506 80
Stoughton,	. . . . .	121 03
Sturbridge,	. . . . .	4,453 52
Sudbury,	. . . . .	2,105 72
Sunderland,	. . . . .	449 92
Sutton,	. . . . .	1,173 29
Swansea,	. . . . .	181 01
Taunton,	. . . . .	4,182 86
Templeton,	. . . . .	9,984 17
Townsend,	. . . . .	298 62
Truro,	. . . . .	546 30
Uxbridge,	. . . . .	17 50
<i>Amount carried forward,</i>		\$311,532 80



<i>Amount brought forward,</i>		\$311,532 80	
Walpole,	257 13		
Wareham,	1,490 05		
Watertown,	519 09		
Wayland,	464 14		
Wellfleet,	916 31		
West Bridgewater,	1,565 98		
Westfield,	2,440 21		
Westminster,	1,259 59		
West Newbury,	1,972 82		
Weston,	2,266 81		
Westport,	3,123 71		
West Springfield,	6,669 95		
Westwood,	437 17		
Weymouth,	2,898 40		
Whately,	442 36		
Whitman,	169 02		
Williamsburg,	2,663 13		
Williamstown,	208 40		
Wrentham,	251 76		
Yarmouth,	2,325 13		
			\$343,873 96

## Miscellaneous:—

Analysis of tar and oil,	\$1,908 43	
6 road drags,	126 50	
6 road machines, graders and planers,	785 00	
4 automobiles,	2,375 10	
Automobile storage, care, supplies and repairs,	823 58	
7 heating and tar kettles,	545 00	
1 upright boiler, mounted,	432 10	
1 street sweeper, with extra broom,	300 00	
1 gasoline pump and engine,	407 00	
2 spraying machines,	533 77	
1 Studebaker road oiler,	252 00	
4 oiler attachments,	745 00	
1 pumping outfit,	142 00	
6 wagon gears,	310 81	
2 tanks for oil wagons,	110 00	
3 tank wagons,	926 91	
5 road ploughs,	101 00	
9 coal screens,	71 50	

<i>Amounts carried forward,</i>	\$10,895 70	\$343,873 96
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<i>Amounts brought forward,</i>	\$10,895 70	\$343,873 96
1 truck for oil sprayer,	22 37	
2 diaphragm pumps,	48 00	
3 weeders,	27 00	
10 sand dryers,	30 00	
1 fire extinguisher,	14 25	
3 pouring pots,	12 75	
1 chain block,	24 94	
5 tents,	91 00	
Rent, light and fuel,	1,109 96	
Salaries, labor and expense,	5,908 63	
Tools and apparatus,	1,445 48	
Freight and express,	362 32	
Materials and repairs,	1,436 73	
Supplies, parts and fittings,	2,766 98	
Registration of automobiles,	40 00	
Storage of machinery,	50 00	
Miscellaneous items,	964 84	
		25,250 95
Cost of engineering,		42,012 90
Traffic census:—		
Paid observers,	\$3,107 30	
Printing and supplies,	55 60	
Automobile hire and livery,	33 50	
Office, expense,	73 32	
		3,269 72
Repair and maintenance of town and county ways (chapter 525, Acts of 1910):—		
Acton,	\$25 75	
Amherst,	2,328 97	
Ayer,	1,000 00	
Barre,	3,686 62	
Becket-Lee,	610 33	
Brookfield,	3,683 53	
Cheshire,	116 01	
Clarksburg,	47 70	
Cummington,	4,288 62	
Danvers,	2,892 98	
Deerfield,	4,428 59	
Egremont,	2,100 38	
Goshen,	3,360 99	
<i>Amounts carried forward,</i>	\$28,570 47	\$414,407 53

*Amounts brought forward,* . . . . \$28,570 47    \$414,407 53

Greenfield, . . . . .	2,000 00
Groveland, . . . . .	4,301 69
Hampden, . . . . .	215 17
Huntington, . . . . .	113 99
Ipswich, . . . . .	505 00
Lakeville, . . . . .	800 00
Lanesborough, . . . . .	1,236 48
Lynnfield, . . . . .	323 63
Montague, . . . . .	2,967 60
New Ashford, . . . . .	996 86
Newbury, . . . . .	1,000 00
Newburyport Turnpike, . . . . .	2,194 99
Northborough, . . . . .	517 10
Norton, . . . . .	18 28
Palmer, . . . . .	2,099 73
Peabody, . . . . .	1,800 00
Rowley, . . . . .	1,000 00
Saugus, . . . . .	800 00
Shelburne, . . . . .	807 52
Southampton, . . . . .	622 46
Southwick, . . . . .	2,455 82
Templeton, . . . . .	975 45
Topsfield, . . . . .	1,700 00
Truro, . . . . .	10,964 81
Upton, . . . . .	500 00
Uxbridge, . . . . .	1,000 00
Wakefield, . . . . .	1,150 00
Wayland, . . . . .	100 00
Wellfleet, . . . . .	1,570 69
Whately, . . . . .	1,001 00
Williamsburg, . . . . .	2,560 48
Williamstown, . . . . .	125 06
Windsor, . . . . .	1,327 31
Worthington, . . . . .	189 78

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78,511 37

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\$492,918 90

## GENERAL EXPENSES, DEC. 1, 1911, TO NOV. 30, 1912.

[Under Chapter 287, Acts of 1912.]

Salaries of commissioners, . . . . .	\$6,444 62
Travel of commissioners, . . . . .	3,497 85
Salaries of clerical assistants and first and second engineers, . . . . .	21,345 07
Rent of offices, . . . . .	4,750 00
Printing and binding annual report, . . . . .	809 01
Printing, . . . . .	1,598 81
Office and typewriter supplies, . . . . .	464 64
Telephone, including tolls, . . . . .	581 99
Postage, including postal cards and envelopes, . . . . .	1,450 67
Recording land takings and easements, . . . . .	125 81
Advertising hearings, . . . . .	37 18
Travel and expense of chief engineer, . . . . .	443 02
Rental and repair of typewriters, . . . . .	228 20
Repairs to steam road rollers, . . . . .	7,404 12
Miscellaneous items, including express charges, car fares, telegrams and other minor office expenses, . . . . .	751 58
	<hr/>
	\$49,932 57

## MOTOR VEHICLE FEES FUND.

[Under Chapter 534, Acts of 1909.]

*Automobile Department.*

Salaries of clerks and clerical assistants, . . . . .	\$41,071 28
Rent of offices, . . . . .	3,532 02
Number plates, motor cycle seals and speed signs, . . . . .	18,279 05
Printing, . . . . .	6,008 15
Postage, including postal cards and envelopes, . . . . .	5,646 84
Typewriters purchased and rented, . . . . .	484 45
Office and typewriter supplies, . . . . .	1,280 30
Cartage and storage, . . . . .	729 41
Miscellaneous items, including express charges, car fares, telegrams and other minor office expenses, . . . . .	469 84
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	\$77,501 34

*Expenses of Examiners and Investigators.*

Salaries of inspectors and examiners, . . . . .	\$12,419 45
Salaries of clerk and stenographers, . . . . .	2,948 50
Mileage books, . . . . .	1,070 00
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Amount carried forward, . . . . .	\$16,437 95

<i>Amount brought forward,</i>	\$16,437 95
Traveling expenses,	2,693 26
Printing,	262 85
Postage, including stamped envelopes,	260 00
Rent,	797 50
Newspaper clippings,	123 51
Miscellaneous items,	168 71
	<hr/>
	\$20,743 78
Rebates of automobile fees,	4,597 50

## EXPENSES CONNECTED WITH TELEPHONE AND TELEGRAPH SUPERVISION.

[Under Chapter 287, Acts of 1912.]

Salaries of commissioners,	\$3,625 00
Salaries of clerical assistants,	2,536 55
Printing,	768 95
Miscellaneous items,	202 14
	<hr/>
	\$7,132 64

[Under Chapter 632, Acts of 1908, and Chapter 78, Resolves of 1909.]

Expenses in connection with an inventory and appraisal of the property of the New England Telephone and Telegraph Company,	\$4,334 54
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## MISCELLANEOUS EXPENDITURES.

[Under Chapters 716 and 717, Acts of 1912.]

Expenditures for the operation, repair and maintenance of the bridge over the Merrimac River between Newburyport and Salisbury, and of the bridge over the Taunton River between Fall River and Somerset,	\$75,304 35
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[Under Chapter 678, Acts of 1911, and Chapter 677, Acts of 1912.]

Expenditures for the construction of a highway between Shelburne Falls and Green River bridge in the town of Greenfield,	\$23,637 68
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[Under Chapter 677, Acts of 1911, and Chapter 646, Acts of 1912.]

Expenditures for the construction of a highway over Hoosac Mountain, between the city of North Adams and the valley of the Deerfield River,	\$11,030 99
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[Under Chapter 647, Acts of 1912.]

Expenditures for the improvement of a highway along the northerly bank of the Merrimac River,	\$5,040 59
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## [Under Chapters 416-744, Acts of 1911.]

Expenditures for the improvement of Beach Point Road in the town of Truro, . . . . .	\$805 94
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## [Under Chapter 627, Acts of 1912.]

Expenditures for the improvement of a highway between the towns of Dalton and Goshen in the counties of Berkshire and Hampshire, . . . . .	\$648 36
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## [Under Chapter 746, Acts of 1911, and Chapter 454, Acts of 1912.]

Expenditures for the construction of a highway from the New Hampshire line to Broadway in the town of Salisbury, . . . . .	\$336 81
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## [Under Chapter 703, Acts of 1912.]

Expenditures for the construction or improvement of a highway between the towns of Ware and West Brookfield, . . . . .	\$184 57
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## [Under Chapter 487, Acts of 1910.]

Expenditures for material for the repair and maintenance of State highways, . . . . .	\$100 00
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## SUMMARY OF EXPENDITURES.

For construction, . . . . .	\$361,384 04
For construction under "small town" acts, . . . . .	70,625 38
For road repair and maintenance, from revenue, . . . . .	208,686 71
For road repair and maintenance (motor vehicle fees fund), . . . . .	489,649 18
For traffic census, . . . . .	3,269 72
For general expense under chapter 287, Acts of 1912, . . . . .	49,932 57
For expenditures connected with automobile registration, . . . . .	77,501 34
For expense of examiners and investigators, . . . . .	20,743 78
For rebates of automobile fees, under chapter 534, Acts of 1909, . . . . .	4,597 50
For telephone and telegraph supervision, under chapter 392, Acts of 1912, . . . . .	7,132 64
For expenditures under chapter 632, Acts of 1908, and chapter 78, Resolves of 1909, . . . . .	4,334 54
For expenditures under chapters 716 and 717, Acts of 1912, . . . . .	75,304 35
For expenditures under chapter 678, Acts of 1911, and chapter 677, Acts of 1912, . . . . .	23,637 68
<i>Amount carried forward, . . . . .</i>	<u>\$1,396,799 43</u>

*Amount brought forward,* . . . . . \$1,396,799 43

For expenditures under chapter 677, Acts of 1911, and chapter 646, Acts of 1912, . . . . .	11,030 99
For expenditures under chapter 647, Acts of 1912, . . . . .	5,040 59
For expenditures under chapters 416 and 744, Acts of 1911, . . . . .	805 94
For expenditures under chapter 627, Acts of 1912, . . . . .	648 36
For expenditures under chapter 746, Acts of 1911, as amended by chapter 454, Acts of 1912, . . . . .	336 81
For expenditures under chapter 703, Acts of 1912, . . . . .	184 57
For expenditures under chapter 487, Acts of 1910, . . . . .	100 00
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	\$1,414,946 69

WM. D. SOHIER,

F. D. KEMP,

JAMES W. SYNAN,

*Massachusetts Highway Commission.*

## APPENDIX A.

## REPORT OF THE CHIEF ENGINEER.

*To the Massachusetts Highway Commission.*

GENTLEMEN: — The following report concerning the work done by the engineering department during the year ending Nov. 30, 1912, is respectfully submitted: —

## SURVEYS, ESTIMATES AND DESIGNS.

During the year preliminary surveys, plans and estimates were made on contemplated State highways in 45 towns, covering an aggregate distance of 60.89 miles. Lines and grades for construction work on State highways have been made in 50 towns, covering an aggregate distance of 58.55 miles, some of this work having been done on roads upon which construction was commenced in 1911. Final surveys and measurements were made on completed State highways in 31 towns, covering an aggregate distance of 25.16 miles. On "small town" work, so called, preliminary surveys, including plans and profiles, were made in 88 towns, covering an aggregate distance of 52.5 miles. In addition to the above, surveys have been made in 9 towns of roads to be constructed by towns, covering an aggregate distance of 12.84 miles.

Layout plans have been made of roads in 46 towns, covering an aggregate distance of 40.92 miles. Plans to accompany decrees for street railway locations on State highways have been made in 27 towns.

## BRIDGES.

The following is a list of bridges built or contracted for during the year: —

Charlemont — over Deerfield River; 3-span concrete arch, total length, 256 feet.

Charlemont — over Boston & Maine Railroad; concrete arch, 68-foot span.

Charlemont-Buckland — over Deerfield River; abutments for steel truss, 128-foot span.



Dighton — over Segreganset River; concrete beam bridge, 17-foot span.  
Dracut — over Richardson's Brook; concrete slab, 12-foot span.  
Florida-Savoy — over Cold River; concrete arch, 65-foot span.  
Middleborough — over Nemasket River; concrete beam, 32-foot span.  
Northfield — over Wanamaker Brook; concrete beam, 20-foot span.  
South Hadley — over Bachelor Brook; concrete beam, 29½-foot span.  
Walpole — over Neponset River; concrete beam, 15-foot span.  
Williamsburg — over Mill River; concrete beam, 36½-foot span.  
Windsor — over Baldwin Brook, concrete beam, 24-foot span.  
Wrentham — over brook from Pearl Lake; concrete beam, 19-foot span.

Designs and estimates have also been made for contemplated bridges as follows:—

Groton — over Nashua River; concrete beam, 3 spans, total, 97 feet.  
Wareham — over Onset Bay at Pt. Independence; 3 spans, concrete arch, total, 268 feet.  
Clarksburg — over north branch, Hoosac River; concrete arch, 69-foot span.

#### STATE HIGHWAYS.

Construction has been completed of 11.25 miles on contracts that were pending at the beginning of the year, and construction has also been completed of 21.57 miles of roads on which work was commenced during the present year, making a total of 32.82 miles of construction completed during the year. Up to the present time 920.51 miles have been laid out as State highway.

Construction has been commenced but not completed on 20.16 miles of roads on layouts of this year in 16 towns.

Of the above roads completed this year, 4.58 miles were of water-bound macadam; 6.72 miles were of gravel; 3.19 miles were of sand bound with oil; 12.02 miles were of bituminous macadam, that is, macadam with bituminous binder incorporated in the top course; 3.93 miles were of water-bound macadam with an oil surface applied; 2.24 miles were of gravel with the top surface bound with bituminous binder.

Accompanying this report is a table showing costs of construction of State highways separated, in order that comparisons may be made between the costs of different classes of work in different portions of the State under varying conditions.

#### "SMALL TOWN" WORK.

Under the provisions of the "small town" act, roads were constructed during the year in 54 towns, and contracts were made but not completed in 29 towns. The lengths, types and costs of these roads are shown in tabular form in this report.

## MAINTENANCE OF STATE HIGHWAYS.

Bituminous material has been used in the maintenance of State highways during the present year on 283.55 miles, and in construction, on 21.38 miles, and there are at present 729.83 miles of State highway on which bituminous material has been used either in construction or maintenance. While there have been a few failures of bituminous roads, the use of bituminous material seems at the present time to be an economical way of preserving the roads under the present traffic, and I recommend continuing the use of this material in construction and maintenance.

## PERMITS.

Eight hundred and fifty-five permits have been issued during the year for occupying or opening State highways for various purposes. In a few cases the expense of inspecting the work done under permits has been paid by the parties to whom permits were issued. This has been done, however, only in such cases as seemed to require constant supervision for several days or weeks.

## ADVICE TO TOWNS.

During the year your engineers have given engineering advice to officials in 56 towns and counties. The scope of the work for which advice has been given has varied greatly, and the cost of the work carried out in accordance with advice, although a large sum, cannot be definitely determined, as we have no access to the accounts which show the cost of the work done.

## SPECIAL ACTS OF THE LEGISLATURE.

Work has been completed on the Greenfield Road and is under way on the Shelburne Road, as authorized by chapter 677, Acts of 1912, and chapter 678, Acts of 1911.

Work is under way in Windsor, as authorized by chapter 627, Acts of 1912, and chapter 711, Acts of 1911.

Work is under way on the road over Hoosac Mountain between North Adams and valley of the Deerfield River, as authorized by chapter 646, Acts of 1912, and chapter 677, Acts of 1911.

Work is under way in Dracut and Methuen, as authorized by chapter 647, Acts of 1912.

Work is under way in Salisbury, as authorized by chapter 454, Acts of 1912.

Survey and plans have been made for construction of road be-

tween Ware and West Brookfield, as authorized by chapter 703, Acts of 1912.

For construction of traffic road in the town of Revere, as authorized by chapter 697, Acts of 1912, surveys have been made, and additional surveys are under way, with the aim in view of securing the best location, taking into consideration each and every condition, especially anticipated traffic, cost of construction and right of way. At the present date it appears possible to complete the entire work authorized before the end of the coming year.

Many details submitted informally to your Board for use in your annual report are herein omitted in order to avoid unnecessary repetition.

Respectfully submitted,

A. W. DEAN,

*Chief Engineer.*

TABLE SHOWING APPROXIMATE COSTS OF GRADING AND DRAINAGE, SEPARATED FROM SURFACE COSTS, ON ROADS COMPLETED IN 1912.

TOWN.	Type of Surface.	LENGTH OF CALCULATIONS.		Drainage, and Culverts, Bridges, Total Cost.	Grading and Foundation, Cost per Mile.	COST OF SURFACE.	
		Miles.	Square Yards.			Per Mile.	Per Square Yard.
Amesbury, . . . . .	Macadam, 4½-inch, trap rock, bituminous binder, . . . . .	.28	2,464	\$907	\$3,564	\$7,593	\$0 86
Ashby, . . . . .	Macadam, 5-inch, local stone, . . . . .	.60	5,280	592	3,133	5,275	60
Ashby, 1911, . . . . .	Macadam, 5-inch, local stone, . . . . .	.44	3,872	296	4,600	4,968	56
Bourne, . . . . .	Macadam, 3¾-inch, trap rock, bituminous binder, . . . . .	.08	5,984	624	1,348	7,135	81
Chelmsford, 1911, . . . . .	Gravel, 5-inch, . . . . .	1.42	12,496	672	2,447	1,201	13
Dighton, 1911, . . . . .	Macadam, 4¼-inch, local stone, bituminous surface coat, . . . . .	1.02	8,976	141	1,140	3,727	42
Erving, . . . . .	Concrete, 5-inch, bituminous surface coat, concrete beam bridge, . . . . .	.03	264	2,299	4,977	10,833	1 25
Franklin, 1911, . . . . .	Gravel, 6-inch, . . . . .	1.17	10,296	467	2,915	1,795	20
Haverhill, . . . . .	Macadam, 5-inch, trap rock, bituminous binder, . . . . .	.43	3,784	1,140	3,602	7,116	80
Lakeville, . . . . .	Macadam, 4¼-inch, local stone, bituminous binder, . . . . .	1.24	10,912	282	2,890	5,690	64
Lanesborough, . . . . .	Macadam, 4-inch, trap rock, bituminous binder, . . . . .	.34	2,992	400	5,490	5,976	66
Montague, 1910, . . . . .	Macadam, 5-inch, local stone, . . . . .	.82	7,216	253	2,058	4,416	50
Plymouth, 1911, . . . . .	Sand and oil, 3½-inch, mixed, . . . . .	1.00	8,800	859	8,192	4,027	45
Raynham, . . . . .	Macadam, 4-inch, local stone, bituminous binder, . . . . .	.96	8,448	326	3,731	6,262	74

Salisbury, 1911,	.	.	.	Macadam, 4½-inch, local stone, bituminous binder,	.	.	1.22	10,736	621	2,160	5,225	59
Sandwich,	.	.	.	Sand and oil, 3-inch, mixed,	.	.	.85	7,978	318	1,245	4,545	48
South Hadley,	.	.	.	Macadam, 5-inch, trap rock,	.	.	1.31	11,528	1,131	5,754	4,575	52
Spencer, 1911,	.	.	.	Macadam, 5-inch, trap rock, concrete arch,	.	.	.03	264	4,727	10,166	9,441	1 07
Swansea, 1911,	.	.	.	Macadam, 4-inch, local stone,	.	.	.78	6,864	543	1,356	2,946	43
Tyngsborough,	.	.	.	Macadam, 4-inch trap rock, bituminous binder,	.	.	.72	6,336	1,581	1,525	6,740	76

## APPENDIX B.

### RELATING TO THE WORK OF THE AUTOMOBILE DEPARTMENT.

*Statement showing the Number of Registration Certificates and Licenses to operate issued during the Fiscal Year 1912, also the Fees received for the same, together with the Fees for Examinations, for Copies of Certificates of Registration and Licenses, etc., and Fines for Violation of the Automobile Law.*

Certificates of registration: —

Automobiles, . . . . .	50,132	\$492,482	50
Motor cycles, . . . . .	5,034	9,644	00
Manufacturers and dealers, . . . . .	1,114	32,582	50

Licenses to operate: —

Operators, . . . . .	14,693	at \$2	00	29,386	00
Chauffeurs, . . . . .	5,570	at 2	00	11,140	00
Operators' renewals, . . . . .	32,255	at	50	16,127	50
Chauffeurs' renewals, . . . . .	14,127	at	50	7,063	50
Examinations, . . . . .	7,018	at 2	00	14,036	00
Copies of certificates and licenses furnished, . . . . .	2,112	at	50	1,056	00
Number plates and seals, . . . . .				1,147	00
Miscellaneous receipts, including interest on deposits, ..				1,580	94

Amount received at the office of the commission, . . .	\$616,245	94
Court fines received by the Treasurer and Receiver-General, . . . . .	29,208	70

Total receipts for the year, . . . . . \$645,454 64

### REPORT OF THE EXAMINING AND INVESTIGATING DEPARTMENT.

F. I. BIELER, *Secretary, Massachusetts Highway Commission.*

DEAR SIR:— I respectfully submit the following as the sixth annual report of the examining and investigating department, for the period from Dec. 1, 1911, to Dec. 1, 1912. Statistical tables containing the data of this department are handed you herewith.

#### *Examinations.*

Applicants for chauffeurs' licenses have been notified to appear for examination in 9 cities of the Commonwealth besides Boston, and by request a few examinations have been conducted in Lawrence and Oak Bluffs.

In comparison with the statistics of last year, the following features may be noted:—

	1911.	1912.
Total number of examinations, . . . . .	6,152	7,045
Total number persons examined, . . . . .	4,648	5,936
Total number persons passed, . . . . .	4,119	5,589
Total number failures on first examination, . . . . .	1,424	1,117
Total number failures on road examination, . . . . .	1,496	1,204
Total number persons failed to receive license, . . . . .	529	347
Total per cent. failed to receive license, . . . . .	11.38	5.84
Total per cent. failures on first examination, . . . . .	31.53	19.34
Total per cent. failed on written test, first examination, . . . . .	8.63	3.37
Total per cent. failed on road test, first examination, . . . . .	25.11	15.96

From these statistics it will be seen that 1,288 more persons were examined and 893 more examinations were conducted this year than last. The percentage of failures on the written examination has decreased. This is explained by the examiners being more lenient when marking the written part of the examination. The decrease in failures on the road test indicates that applicants are being better prepared before presenting themselves for examination. One thousand four hundred and seventy more persons passed the examination this year than last. This year 5.84 per cent. finally failed, as against 11.38 per cent. for 1911. There were 1,204 failures in the road test, a decrease of 292. More than half of the total number of examinations, or 3,652, were conducted in Boston. The balance, or 3,393, were conducted in the other cities.

From the expenditures apportioned to examinations it has been found that the average cost of each examination is \$1.07.

#### *Investigations and Prosecutions.*

A comparison of cases investigated in 1911 and 1912 is given below:—

	1911.	1912.
Cases investigated, . . . . .	504	595
Prosecutions, . . . . .	39	42

The department has verified and investigated 146 deaths. Of these deaths, 142 occurred in Massachusetts, 2 in Rhode Island, 1 in Maine and 1 in New Hampshire. These last 4 cases were investigated for the reason that the operators were residents of this State. Of the 142 deaths which occurred in Massachusetts, 2 were due in

part to heart disease and 1 to tuberculosis, and may be regarded as having been only indirectly connected with the operation of automobiles.

On May 15, 1912, Albert S. Olsson of Boston was appointed inspector and examiner. From June 1 to November 1 practically all the examinations have been conducted by Messrs. C. G. Hubbell and A. S. Olsson. Mr. A. F. Foote, as in past years, has investigated all accidents in the western part of the State. Mr. E. L. Blish has been located in Worcester, and has had charge of the central district. Messrs. Paul H. Weinert, William MacConnell and Thomas A. Dolan have investigated in the eastern and southern districts, with their headquarters in Boston.

As in previous years, the inspectors have continued to give a great deal of time to investigating complaints and to reporting on the general reputation of applicants for licenses who have had their licenses either suspended or revoked. Since practically all examinations have been conducted by two examiners, it has been possible for the inspectors to devote more time to investigations. We were compelled this year to place on file a larger number of serious accident cases because it was impossible, with the present force of inspectors, to investigate them all.

We have received more than 4,889 newspaper clippings referring to automobile accidents and prosecutions in which motor vehicles were involved. A daily record has been kept showing all automobile accidents and collisions in a carefully analyzed tabulation. Besides the daily record, a monthly compilation is also made.

A comparison of the figures for the year 1911 with those of 1912 is given below:—

#### DEATHS, INJURIES AND ACCIDENTS.

##### *Deaths and Injuries.*

	KILLED.		INJURED.	
	1911.	1912.	1911.	1912.
Occupants of automobiles, . . . .	33	37	505	703
Pedestrians, . . . . .	67	92	517	877
Motor cycle riders, . . . . .	- <sup>1</sup>	5	- <sup>1</sup>	72
Bicycle riders, . . . . .	9	4	64	97
Occupants of carriages, . . . . .	1	3	153	190
Street car passengers, . . . . .	-	-	9	23
Equestrians, . . . . .	-	1	-	-
Total, . . . . .	110	142	1,248	1,962

<sup>1</sup> Entered under "occupants of automobiles."



*Accidents.*

	1911.	1912.
Automobiles v. pedestrians, . . . . .	584	970
Automobiles v. automobiles, . . . . .	182	288
Automobiles v. carriage, etc., . . . . .	236	284
Automobiles v. motor cycle, . . . . .	- <sup>1</sup>	74
Automobiles v. bicycle, . . . . .	78	101
Automobiles v. trolley car, . . . . .	115	182
Automobiles v. pole, post, etc., . . . . .	326	530
Automobiles v. train, . . . . .	10	12
Total, . . . . .	1,531	2,441

<sup>1</sup> Entered under "occupants of automobiles."

	1911.	1912.
Accidents in daytime, . . . . .	1,098	1,632
Accidents after dark, . . . . .	433	809
Accidents on country roads, . . . . .	280	495
Accidents on city or town streets, . . . . .	1,251	1,946

It will be seen from the above table that there has been a large increase under each heading.

On the basis of expenditures apportioned to investigations, the average cost per investigation has been, approximately, \$22.21.

*Probation.*

During the year 1912, 18 chauffeurs or operators, who had been placed on probation by the Board, were required to report either at this office or in districts in charge of the several inspectors. Of this number, 13 fully complied with the terms of their probation, and 5, for not properly keeping such terms, had their licenses either suspended or revoked.

*Court Abstracts.*

During the year 1912, 3,670 abstracts of court records have been received, as against 3,322 received in 1911. These abstracts have come from 75 courts in this Commonwealth. As in previous years, considerable difficulty has been experienced in obtaining these abstracts. The inquiries for information contained in them has greatly increased. These inquiries have been made by telephone, by letter and in person.

*Analysis of the Abstracts of Court Records for the Period from Dec. 1, 1911, to Dec. 1, 1912.*

Number of courts that have forwarded abstracts, . . . . .	75
Total number of abstracts received, . . . . .	3,670
Persons guilty of unlawful automobiling, . . . . .	2,853
Persons not guilty of unlawful automobiling, . . . . .	176
Cases appealed to a higher court, . . . . .	353
Complaints placed on file, . . . . .	731
Complaints <i>not</i> <i>prossed</i> , . . . . .	107
Defendants defaulted, . . . . .	13
Persons committed to imprisonment, . . . . .	16
Complaints brought:—	
For manslaughter, . . . . .	2
For murder, . . . . .	1
For overspeeding, . . . . .	759
For reckless operating, . . . . .	169
For operating in a race, . . . . .	2
For operating while intoxicated, . . . . .	113
For using automobile without authority, . . . . .	49
For endangering lives and safety of the public, . . . . .	40
For failing to stop after causing injury, . . . . .	25
For improper display or no register number, . . . . .	83
For operating without a license, . . . . .	274
For operating without carrying registration certificate, . . . . .	67
For operating an unregistered motor vehicle, . . . . .	46
For refusing to stop when signalled by officer, . . . . .	67
For operating with unlighted lamps, . . . . .	447
For violations of park rules, . . . . .	212
For failing to give signal when approaching intersecting way, . . . . .	1,026
For miscellaneous offences, . . . . .	358
Fines, etc., as shown by court abstracts:—	
For violating State statutes, . . . . .	\$31,272 00
For violating metropolitan park rules, . . . . .	1,941 00
For cost of court, . . . . .	2,465 82
Total, . . . . .	<hr/> \$35,678 82

Respectfully submitted,

F. L. AUSTIN,  
*Chief Examiner and Inspector.*

## APPENDIX C.

RELATING TO THE PLANTING AND CARE OF SHADE TREES ON  
STATE HIGHWAYS.

## REPORT OF FORESTER OF HIGHWAY COMMISSION.

CLINTON, Aug. 5, 1912.

*To the Massachusetts Highway Commission.*

GENTLEMEN:— During the spring preparation was made for the planting of trees in the following towns: Agawam, extending the existing planting to the Connecticut line; West Warren, making complete the tree work from Worcester to Springfield; South Dennis and Harwich, completing the tree planting on the south side of the cape; Hatfield and Whately, extending the planting northerly from the existing planting in Hatfield to the Whately woods.

The planting of hedges to replace guard rails was commenced this spring. Paxton was selected as a suitable place to test the value of the work, and the following varieties of shrubs that had been grown for a year in the nursery were used: *Aralia pentaphylla* (five leafed aralia); *Rosa Rugosa* (Japanese rose); *Berberis vulgaris* (native barberry); *Privet Ibot* (Chinese privet); *Syringa vulgaris* (common lilac). A trench was dug 1 foot back of the guard rail, the poor soil replaced by better soil from the roadside to the depth of a foot, and the shrubs planted 1 foot apart.

The experience of the last few years would indicate that dry summers were an established fact. This naturally increases slightly the percentage of loss. To meet this condition requires the most careful attention in the maintenance of both old and young trees.

The forester has had charge of spraying the elm trees west of Worcester and work has been done in 37 towns.

Early in the season the forester asked to be relieved of his duties, his resignation to take effect as soon as the work would allow; accordingly, his services ended in July. This accounts for the report being prepared at the above date.

It is gratifying to note that during the time I have served the commission as forester it has been my pleasure to meet many persons who are interested in this important branch of work.

For the appreciative remarks which have been made by persons both in this country and abroad I desire to return my thanks.

New trees planted in 1912, . . . . .	1,030
Total trees planted in nine years, . . . . .	16,242
Trees replaced in 1912, . . . . .	781
Percentage of loss, . . . . .	5
Total number of towns in which trees have been planted, . . . . .	65
Cost of maintenance from March 1 to July 1, per tree, . . . . .	\$0 13
Cost of new planting in 1912, per tree, . . . . .	\$1 11

Respectfully submitted,

E. W. BREED,

*Forester.*

## VARIETIES AND DISTRIBUTION OF SHADE TREES PLANTED IN 1912.

*Trees replaced.*

Town.	Elm.	Norway Maple.	Sugar Maple.	White Maple.	Ash-leaf Maple.	White Ash.	Willow.	Miscellaneous.	Totals.
Agawam, . . . . .	-	20	-	-	-	-	2	-	22
Amherst, . . . . .	-	-	4	-	-	-	-	-	4
Andover (north), . . . . .	-	-	-	-	-	-	-	5	5
Andover (south), . . . . .	-	-	1	4	-	4	7	-	16
Ashby, . . . . .	-	5	-	3	-	26	-	-	34
Athol, . . . . .	2	-	-	-	-	2	-	-	4
Auburn, . . . . .	6	17	2	8	-	11	-	1	45
Brewster, . . . . .	16	10	-	-	-	5	1	-	32
Brookfield, . . . . .	-	4	-	4	-	4	1	-	13
Chatham, . . . . .	8	1	-	-	-	4	-	1	14
Chelmsford (north), . . . . .	1	-	-	-	-	-	-	-	1
Cheshire, . . . . .	-	-	3	-	-	-	-	-	3
Dennis, . . . . .	6	1	-	-	-	-	-	-	7
Easthampton (north), . . . . .	-	-	6	-	-	-	3	-	9
Easthampton (south), . . . . .	-	-	12	-	6	-	-	-	18
Fitchburg (north), . . . . .	4	3	-	-	-	-	3	-	10
Gardner, . . . . .	11	-	-	-	-	12	4	-	27
Hadley, . . . . .	2	24	-	-	-	-	25	-	51
Hancock, . . . . .	-	3	-	-	-	-	-	-	3
Hatfield, . . . . .	-	-	9	-	-	-	4	-	13
Huntington, . . . . .	-	-	2	-	-	4	-	-	6
Hyannis, . . . . .	1	-	-	-	-	-	-	-	1
Holyoke, . . . . .	-	-	-	-	-	10	-	-	10
Lee (east), . . . . .	-	3	-	-	-	-	-	-	3
Leicester, . . . . .	-	2	-	-	-	-	-	-	2
Lenox (north), . . . . .	-	2	-	-	-	-	-	-	2
Lenox (south), . . . . .	-	1	-	-	-	-	-	-	1
Lowell (north), . . . . .	3	-	-	3	-	-	2	-	8
Lowell (south), . . . . .	-	1	2	8	-	-	-	-	11
Montague, . . . . .	1	-	-	-	-	30	1	-	32
Natick, . . . . .	2	4	-	-	-	-	-	2	8
North Adams (south), . . . . .	-	-	5	-	2	-	-	1	8
North Adams (west), . . . . .	1	-	2	-	-	-	-	-	3

VARIETIES AND DISTRIBUTION OF SHADE TREES PLANTED IN 1912 —  
*Concluded.*

*Trees replaced.*

Town.	Elm.	Norway Maple.	Sugar Maple.	White Maple.	Ash-leaf Maple.	White Ash.	Willow.	Miscellaneous.	Totals.
Norfolk, . . . . .	-	-	-	-	-	1	1	3	5
North Reading, . . . . .	3	-	-	-	-	10	2	-	15
Norwood, . . . . .	4	2	-	-	-	-	-	-	6
Northampton (south), . . . . .	-	-	3	-	-	-	1	-	4
Orange, . . . . .	6	7	-	-	-	3	-	-	16
Palmer, . . . . .	-	79	-	-	-	20	-	-	99
Pittsfield, . . . . .	-	-	-	-	-	-	-	-	-
Pittsfield (west), . . . . .	-	2	-	-	-	-	-	-	2
Reading (north), . . . . .	-	3	-	-	-	1	2	-	6
Reading (south), . . . . .	4	3	-	-	-	-	-	-	7
Richmond, . . . . .	-	6	-	-	-	-	1	-	7
Scituate, . . . . .	-	25	-	-	-	3	-	-	28
Spencer, . . . . .	-	-	-	-	-	8	1	5	14
Stoneham (north), . . . . .	1	2	-	-	-	-	-	-	3
Stoneham (south), . . . . .	3	-	1	-	-	-	-	-	4
Templeton, . . . . .	1	4	-	-	-	-	1	-	6
Townsend, . . . . .	4	-	-	1	-	6	-	1	12
Tyngsborough, . . . . .	6	-	-	1	-	8	-	8	23
Walpole (north), . . . . .	2	1	-	-	-	6	-	-	9
Walpole (south), . . . . .	2	-	-	-	-	3	-	3	8
Warren, . . . . .	1	-	-	-	-	2	-	-	3
West Brookfield, . . . . .	-	1	-	-	-	-	-	-	1
Westfield, . . . . .	-	-	8	9	11	-	-	-	28
Westminster, . . . . .	2	8	-	-	-	-	4	-	14
Williamstown, . . . . .	1	-	-	-	-	-	-	-	1
Wrentham, . . . . .	-	1	2	-	-	3	-	4	10
Wilbraham, . . . . .	-	-	15	-	-	-	-	-	15
Yarmouth, . . . . .	-	-	-	-	-	-	-	-	-
Yarmouth (south), . . . . .	2	1	-	-	3	3	-	-	9
Totals, . . . . .	106	167	156	41	22	189	66	34	781

*New Trees planted in the Spring of 1912.*

Town.	Elm.	Norway Maple.	Black Locust.	White Ash.	Willow.	Total.
Agawam, . . . . .	5	108	—	—	22	135
Dennis (south), . . . . .	92	7	30	81	24	234
Harwich, . . . . .	63	24	—	89	19	195
Hatfield, . . . . .	—	272	—	9	9	290
Warren, . . . . .	—	25	—	10	5	40
Whately, . . . . .	—	136	—	—	—	136
Totals, . . . . .	160	572	30	189	79	1,030

## REPORT OF MR. F. W. RANE, STATE FORESTER.

BOSTON, MASS., Dec. 16, 1912.

*Massachusetts Highway Commission, 15 Ashburton Place, Boston, Mass.*

GENTLEMEN:— Enclosed herewith you will find a copy of the list of the cities and towns which have done gypsy and brown-tail moth work, also the spraying done on the State roads and paid for out of your Massachusetts Highway Commission moth funds.

We also enclose a list of the cities and towns where the work was paid for out of the funds from this department after the highway money had been exhausted. In the town of Winchester over \$265.91 was expended on the State road, of which sum \$220 was for moving dead limbs and dead trees; in the town of Concord \$320.97 of the \$507.94 was spent for the same kind of work. There is an expense of \$400 for removing dead trees and dead branches from the State road in Concord, for which your commission has received a bill for \$320.97, and there is another bill due for about \$80, but we have not received it at this office at this time.

Very truly yours,

F. W. RANE,  
*State Forester.*

## WORK DONE ON STATE HIGHWAYS, PAID FOR BY HIGHWAY COMMISSION.

Acton.	Harvard.	Plainville.
Amesbury.	Harwich.	Raynham.
Andover.	Haverhill.	Reading.
Ashby.	Hingham.	Rehoboth.
Ashland.	Holliston.	Rockland.
Attleborough.	Hudson.	Rowley.
Barnstable.	Ipswich.	Salisbury.
Barre.	Lakeville.	Scituate.
Bedford.	Lancaster.	Somerset.
Beverly.	Leominster.	Sterling.
Billerica.	Littleton.	Stoneham.
Boxborough.	Lowell.	Sudbury.
Brewster.	Lunenburg.	Sutton.
Bridgewater.	Mansfield.	Swansea.
Brockton.	Marion.	Taunton.
Burlington.	Melrose.	Templeton.
Chatham.	Merrimac.	Tewksbury.
Chelmsford.	Methuen.	Townsend.
Concord.	Middleborough.	Tyngsborough.
Dennis.	Millbury.	Wayland.
Dighton.	Milton.	Wenham.
Dracut.	Newbury.	West Bridgewater.
Duxbury.	Newburyport.	West Newbury.
Falmouth.	North Andover.	Westford.
Fitchburg.	North Attleborough.	Weston.
Foxborough.	North Reading.	Wilmington.
Framingham.	Northborough.	Winchester.
Gloucester.	Norton.	Woburn.
Grafton.	Norwood.	Worcester.
Groton.	Orleans.	Wrentham.
Groveland.	Pepperell.	Yarmouth.



## APPENDIX D.

## REPORT OF THE CHEMIST.

*Massachusetts Highway Commission.*

GENTLEMEN:— During the year ending Nov. 30, 1912, 299 samples of bituminous materials have been examined in the laboratory, a number 25 per cent. greater than examined during 1911. Practically the same physical and chemical methods of analysis have been used as during the previous years. A summary of the results of all these analyses shows that 25 materials, having different trade names, have been forwarded to the laboratory, these including 49 samples of asphalt oils A, B and C; 64 samples of standard macadam binders A and B; 52 samples of refined tar labeled tarvia A, tarvia B, tarvia X, tarine and tarite; 32 samples of Bermudez road asphalt, together with many scattering samples of California oil, California asphalt binder, liquid Trinidad asphalt, standard road oil, standard paving asphalt, Texaco, Texas road binder, etc.

Averages of samples of all the material used in the different towns of the State have been presented to you in tabular form. Tables have also been presented showing the averages of all analyses of each material, and the maximum and minimum figures obtained with each material. These figures show that there has been at times a wide difference in viscosity, loss on evaporation, etc., in samples of materials with the same trade name, yet when all the material of one kind used in one town is compared with all of the same kind used in another town, the divergence in quality has in most instances not been great. For instance, standard macadam binder A with the greatest viscosity, namely 480, was used in Salisbury, and with the least, 410, in Athol, a total difference of 70; whereas in 1911 the difference was from 390 in Tyngsborough to 590 in Groveland, a difference of 200. In other respects this material, speaking generally, has been quite uniform. The viscosity of asphalt oil A has varied from 270 in Newburyport to 200 in Orange, and similar variations can be found in the other asphalt bodies used. The same divergence, and sometimes to a greater degree, occurs with refined tars sold under

the same trade name and assumed to be of the same grade. A much smaller number of the samples have frothed when heated than during 1911, but a greater uniformity in the quality of material sold under the same trade name may well be urged.

Respectfully submitted,

H. W. CLARK,  
*Chemist.*

BOSTON, MASS., Dec. 23, 1912.

## APPENDIX E.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, AND CONSTRUCTION EXPENDITURES, TO DEC. 1, 1912.

TOWN OR CITY.	Year.	ROADS LAID OUT.				Length constructed (Miles).	Construction Expenditures to Dec. 1, 1912.
		From —	Direction.				
Abington, . . . . .	1900-1-3, . . . . .	Brookton line, . . . . .	Easterly, . . . . .		1.73	1.74	\$34,157 78
Abington, . . . . .	1905-7, . . . . .	Holbrook line, . . . . .	Easterly, . . . . .		1.64	1.64	
Abington, . . . . .	1911, . . . . .	Weymouth line, . . . . .	Southerly, . . . . .		.95	.95	
Acton (Great Road), <sup>1</sup>	1899-1900-1-2, . . . . .	Concord line to Littleton line, . . . . .	Northwesterly, . . . . .		3.71	3.71	54,824 42
Acton (West), . . . . .	1901-7, . . . . .	Boxborough line, . . . . .	Southwesterly, . . . . .		1.67	1.67	
Acton, . . . . .	1912, . . . . .	Easterly end of 1907 section, . . . . .	Southeasterly, . . . . .		.64	.64	
Acushnet, . . . . .	1901-3, . . . . .	Rochester line to Rochester line via Long Plain, . . . . .	Westerly and northerly, . . . . .		2.80	2.80	8,951 63
Acushnet, . . . . .	1897, . . . . .	Near New Bedford line, . . . . .	Northerly, . . . . .		.61	.61	
Adams (Maple Grove), . . . . .	1897, . . . . .	Cheshire line, . . . . .	Northerly, . . . . .		.57	.57	24,998 58
Adams (Orchard Street), . . . . .	1908, . . . . .	Cheshire line, . . . . .	Northerly, . . . . .		1.46	1.46	
Agawam, . . . . .	1903-4-6-7-9-11, . . . . .	South end bridge to Connecticut line, . . . . .	Southerly, . . . . .		3.99	3.99	46,838 78

<sup>1</sup> Exclusive of 1,100 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed (Miles).	Construction expenditures to Dec. 1, 1912.
		From —	Direction.	Length (Miles).		
Amesbury, . . . . .	1899-1901-3-4, . . . . .	Merrimac line, . . . . .	Easterly, . . . . .	2.25	2.25	
Amesbury, . . . . .	1906-7, . . . . .	Salisbury line, . . . . .	Westerly, . . . . .	.77	.77	\$38,043 13
Amesbury, . . . . .	1912, . . . . .	Westerly end of 1907 section, . . . . .	Westerly, . . . . .	.28	.28	
Amherst, . . . . .	1901-4, . . . . .	Hadley line, . . . . .	Northeasterly, . . . . .	.97	.97	11,612 67
Andover, . . . . .	1895-6, . . . . .	Lawrence line, . . . . .	Southerly, . . . . .	1.22	1.22	45,153 02
Andover, . . . . .	1897-9-1900-2-3, . . . . .	North Reading line, . . . . .	Northerly, . . . . .	2.97	2.97	
Ashburnham, . . . . .	1911, . . . . .	New Hampshire State line, . . . . .	Southeasterly, . . . . .	.67	.67	10,803 37
Ashby, . . . . .	1894-5-6-7-8-9, . . . . .	Fitchburg line to Ashby post office, . . . . .	Northerly, . . . . .	3.57	3.57	
Ashby, . . . . .	1910-11, . . . . .	Townsend line, . . . . .	Southwesterly, . . . . .	.92	.92	74,921 13
Ashby, . . . . .	1912, . . . . .	Westerly end of 1911 section, . . . . .	Southwesterly, . . . . .	.60	.60	
Ashfield, . . . . .	1897-8, . . . . .	One mile north of Ashfield post office, . . . . .	Northerly, . . . . .	1.61	1.61	35,282 05
Ashland, . . . . .	1903, . . . . .	Southborough line, . . . . .	Easterly, . . . . .	1.47	1.47	13,822 90
Ashland, . . . . .	1910, . . . . .	Framingham line, . . . . .	Southerly, . . . . .	1.73	1.73	
Athol, . . . . .	1895-6, . . . . .	Orange line, . . . . .	Easterly, . . . . .	1.61	1.61	40,040 73
Athol, . . . . .	1902-3, . . . . .	Phillipston line, . . . . .	Northwesterly, . . . . .	1.49	1.49	
Attleborough, . . . . .	1900-1-3, . . . . .	North Attleborough line, . . . . .	Southwesterly, . . . . .	2.65	2.65	20,722 11
Attleborough, . . . . .	1909, . . . . .	Norton line, . . . . .	Northwesterly, . . . . .	.74	.74	

	1895-6-7-8-9-1901-3-4,		Worcester line to Oxford line, . .		Southwesterly, . .		5.28		5.28		70,089 83
Auburn, . . . . .	1912, . . . . .		Littleton line to Littleton line,		Southeasterly, . .		.13		-		-
Ayer, . . . . .	1909, . . . . .		Yarmouth line, . . . . .		Westerly, . . . . .		1.91		1.91		
Barnstable (north), . . . . .	1899-1902-7-10-11,		Sandwich line, . . . . .		Easterly, . . . . .		5.49		5.49		
Barnstable (north), <sup>1</sup> . . . . .	1897-1901, . . . . .		Yarmouth line, . . . . .		Westerly, . . . . .		2.26		2.26		50,086 80
Barnstable (south), <sup>1</sup> . . . . .	1904, . . . . .		Marstons Mills, . . . . .		Southerly, . . . . .		1.48		1.48		
Barnstable (west), . . . . .	1897-9, . . . . .		Ware River to Barre Common, . . . . .		Northwesterly, . . . . .		2.89		2.89		29,337 12
Barre, . . . . .	1902-4-5-6-8,		Chester line, . . . . .		Westerly, . . . . .		5.56		5.56		
Becket, . . . . .	1910, . . . . .		Point on Becket-Lee Road, . . . . .		-		.59		.59		106,718 86
Becket, . . . . .	1912, . . . . .		West Becket cemetery, . . . . .		Northwesterly, . . . . .		1.39		-		
Becket, . . . . .	1897-1902, . . . . .		Lexington line, . . . . .		Northwesterly, . . . . .		1.07		1.07		
Bedford, . . . . .	1903-6, . . . . .		Carlisle bridge, . . . . .		Southeasterly, . . . . .		.58		.58		22,145 82
Bedford, . . . . .	1900-1-2-7-8,		Near depot, . . . . .		Westerly, . . . . .		2.35		2.35		22,534 14
Belchertown, . . . . .	1902-5, . . . . .		Blackstone line, . . . . .		Northeasterly, . . . . .		.55		.55		22,866 35
Bellingham, . . . . .	1904-5-6, . . . . .		Franklin line to Mendon line, . . . . .		Westerly, . . . . .		2.63		2.63		
Bellingham, . . . . .	1906, . . . . .		Lakeville line, . . . . .		Northwesterly, . . . . .		.77		.77		5,142 81
Berkley, . . . . .	1911, . . . . .		Fall River to Gill line, . . . . .		Easterly, . . . . .		2.70		2.70		11,476 78
Bernardston, <sup>2</sup> . . . . .	1895-7-8, . . . . .		Wenham line, . . . . .		Southerly, . . . . .		2.01		2.01		
Beverly, . . . . .	1905-6, . . . . .		Manchester line, . . . . .		Southwesterly, . . . . .		3.67		3.67		33,169 42
Billerica, . . . . .	1908, . . . . .		Near "Common," . . . . .		Southeasterly, . . . . .		.58		.58		7,132 37
Blackstone, . . . . .	1899-1900-2-9,		Uxbridge line, . . . . .		Southeasterly, . . . . .		2.55		2.55		20,083 87
Blackstone, . . . . .	1905, . . . . .		Bellingham line to Woonsocket line, . . . . .		Southwesterly, . . . . .		.06		.06		

<sup>1</sup> Exclusive of 1,050 feet at railroad crossing.<sup>2</sup> Exclusive of 143 feet at Boston & Maine bridge.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed to Dec. 1, 1912.	Construction Expenditures to Dec. 1, 1912.
		From —	Direction.	Length (Miles).		
Boston,	1908, . . . . .	Dedham line to Lagrange Street,	Northeasterly, . . . . .	1.40	1.40	\$133,592 53
Bourne,	1897-8-1904,	Cohasset Narrows, . . . . .	Easterly, . . . . .	2.09	2.09	
Bourne, <sup>1</sup>	1903-5-7-10-11, . . . . .	Back River bridge, . . . . .	Southerly, . . . . .	4.62	4.62	47,005 76
Bourne,	1912, . . . . .	Southerly end of 1911 section, . . . . .	Southwesterly, . . . . .	.68	.68	
Boxborough,	1897-9-1905-7, . . . . .	Acton line to Harvard line, . . . . .	Northwesterly, . . . . .	3.31	3.31	20,568 34
Braintree,	1900-2, . . . . .	Quincy line to Fore River, . . . . .	Southeasterly, . . . . .	1.06	1.06	14,798 70
Brewster,	1895-6-7-1901, . . . . .	Dennis line to Orleans line, . . . . .	Easterly, . . . . .	7.78	7.78	
Brewster,	1908, . . . . .	Orleans line to Chatham line, . . . . .	Southerly, . . . . .	.04	.04	31,014 22
Bridgewater,	1904-5-6-7-8, . . . . .	Taunton River, . . . . .	Northwesterly, . . . . .	3.47	3.47	25,481 79
Brimfield,	1897-9, . . . . .	Monson line, . . . . .	Southerly, . . . . .	2.34	2.34	
Brimfield,	1901-2, . . . . .	Wales line, . . . . .	Northerly, . . . . .	1.63	1.63	24,918 21
Brockton,	1897-8-9, . . . . .	Easton line, . . . . .	Easterly, . . . . .	1.87	1.87	
Brockton,	1900, . . . . .	Abington line, . . . . .	Westerly, . . . . .	.66	.66	31,490 15
Brockton,	1904, . . . . .	West Bridgewater line, . . . . .	Northerly, . . . . .	.66	.66	
Brockfield,	1902-3, . . . . .	West Brookfield line, . . . . .	Easterly, . . . . .	.87	.87	
Brockfield,	1905-7, . . . . .	Spencer line, . . . . .	Southwesterly, . . . . .	.77	.77	
Brockfield,	1897-8-1900-4, . . . . .	Brookfield village, . . . . .	Easterly, . . . . .	2.25	2.25	47,124 17
Brockfield,	1912, . . . . .	North Brookfield line to railroad, . . . . .	Southerly, . . . . .	.74	.74	
Buckland,	1894-5-6-7-8-9-1900-3-7, . . . . .	Shelburne Falls station, . . . . .	Westerly and southerly, . . . . .	4.29	4.29	62,580 95

Burlington,	1903-4-5-6,	Woburn line to Billerica line,	Northwesterly,	3.80	33,666 12
Canton,	1905-6-7-8,	Stoughton line,	Northerly,	3.23	25,555 28
Charlemont,	1897-8-9,	Deerfield River bridge,	Easterly,	.77	19,782 22
Charlemont,	1912,	Point on West Road,	Southerly,	.16	
Charlton,	1901-2,	Charlton depot to Charlton City,	Southerly,	1.91	64,460 51
Charlton,	1905-6,	Near Charlton City,	Easterly,	.84	
Charlton,	1909,	Near Charlton City,	Southerly,	.29	45,780 97
Charlton,	1907-10-11,	Oxford line,	Southwesterly,	2.76	
Charlton,	1912,	Connecting 1911 with 1906 section,	Westerly,	1.24	56,939 12
Chatham,	1899-1901-2-5-6,	Depot Street to Harwich line,	Westerly,	4.04	
Chatham,	1907,	Depot Street to Harwich line,	Northwesterly,	3.13	25,382 66
Chelmsford, <sup>2</sup>	1898-9-1901-7-10,	Lowell line to Tyngsborough line,	Westerly and northerly,	2.42	
Chelmsford,	1903-4,	Lowell line toward Chelmsford Center,	Southwesterly,	1.27	57,740 38
Chelmsford,	1908-11,	Near Chelmsford Center,	Southwesterly,	2.52	
Chelsea,	1901-4,	Lewis Street and Eastern Avenue,	Southwesterly,	.96	74,428 00
Cheshire,	1899-1900-1-2-10,	Lanesborough line,	Northeasterly,	4.19	
Chester,	1899-1900-1-2-4-5-9-10-11,	Becket line to Huntington line,	Southeasterly,	6.62	51,603 79
Chicopee,	1897-8-9,	Springfield line,	Northerly,	.92	
Chicopee,	1902-3-4-5-6-7,	Chicopee River,	Northerly,	2.97	35,219 35
Chilmark,	1905-6-8-9-11,	West Tisbury line,	Southwesterly,	6.12	
Clarksburg,	1905-7,	North Adams line,	Northeasterly and northerly,	.97	14,466 74
Clarksburg,	1909,	Red Mill bridge,	Northerly,	.12	

<sup>1</sup> Exclusive of 275 feet at railroad crossing.<sup>2</sup> Exclusive of 1,000 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed (Miles).	Construction Expenditures to Dec. 1, 1912.
		From —	Direction.	Length (Miles).		
Cohasset, <sup>1</sup>	1897-8-1900,	Near Hingham line, . . . . .	Easterly, . . . . .	1.73	1.73	\$16,354 71
Cohasset,	1902-3,	Beechwood Street to Scituate line, . . . . .	Southerly, . . . . .	.55	.55	
Colrain,	1898-1901-5,	Shelburne line, . . . . .	Northerly, . . . . .	2.13	2.13	13,432 80
Concord,	1897-8,	Lincoln line, . . . . .	Northwesterly, . . . . .	1.47	1.47	
Concord,	1900-5-6,	Acton line, . . . . .	Southeasterly, . . . . .	2.12	2.12	38,856 08
Dalton,	1895-6-1903-4,	Pittsfield line, . . . . .	Easterly, . . . . .	2.56	2.56	30,323 97
Dartmouth,	1898-9-1900-1-3-5,	New Bedford line to Smith's Mills, . . . . .	Westerly, . . . . .	4.54	4.54	37,324 72
Dedham,	1908,	Boston line, . . . . .	Southerly, . . . . .	.03	.03	1,040 87
Deerfield,	1894-5,	South Deerfield to Sunderland bridge, . . . . .	Southeasterly, . . . . .	1.53	1.53	
Deerfield,	1900-1-2-3,	Cheapside bridge, Deerfield River, . . . . .	Southerly, . . . . .	1.44	1.44	89,384 60
Deerfield, <sup>2</sup>	1904-5-6-7-8-9-10-11,	South Deerfield, . . . . .	Northerly, . . . . .	4.40	4.40	
Dennis (north),	1895-6-7-8,	Yarmouth line to Brewster line, . . . . .	Northeasterly, . . . . .	4.27	4.27	51,613 25
Deanis (south),	1900-1-2-4-6,	Bass River to Harwich line, . . . . .	Easterly, . . . . .	3.23	3.23	
Dighton (north),	1902-3,	Taunton line to Rehoboth line, . . . . .	Easterly, . . . . .	1.56	1.56	
Dighton (south),	1905-6-8-11,	Three Mile River bridge, . . . . .	Southwesterly and southerly, . . . . .	2.22	2.22	48,184 12
Dighton (south),	1909-10,	Near Somerset line, . . . . .	Northerly, . . . . .	1.08	1.08	
Dighton (south),	1912,	Southerly end of 1911 section, . . . . .	Southerly, . . . . .	.34	.34	
Douglas,	1902-4,	Sutton line to Manchaug, . . . . .	Southeasterly, . . . . .	1.60	1.60	19,932 31
Douglas,	1905,	Main Street, . . . . .	Southeasterly, . . . . .	.54	.54	



Dover, . . . . .	1905-7, . . . . .	Charles River, . . . . .	Westerly, . . . . .	2.18	11,528 29
Dracut, . . . . .	1905-6-7, . . . . .	Near Lowell line on Methuen road, . . . . .	Northeasterly, . . . . .	1.83	20,158 83
Dracut, . . . . .	1912, . . . . .	Lowell line, . . . . .	Northeasterly, . . . . .	3.26	25,442 00
Dudley, . . . . .	1902-4-6-7, . . . . .	Near Webster line, . . . . .	Southwesterly, . . . . .	2.29	37,486 65
Duxbury, . . . . .	1894-5-7-9-1903-5-8-9, . . . . .	Marshfield line to Kingston line, . . . . .	Southerly, . . . . .	5.16	26,502 24
Eastham, . . . . .	1903-4-5-6-9, . . . . .	Wellfleet line to Orleans line, . . . . .	Southerly, . . . . .	6.46	21,386 32
Easthampton, . . . . .	1895-6, . . . . .	Northampton line, . . . . .	Southwesterly, . . . . .	1.32	19,807 65
Easthampton, . . . . .	1900-1, . . . . .	Mount Tom at Clark Street, . . . . .	Northerly, . . . . .	1.10	4,307 93
East Longmeadow, . . . . .	1904-6-10, . . . . .	Springfield line to village, . . . . .	Southeasterly, . . . . .	1.80	17,478 26
Easton, . . . . .	1900, . . . . .	Brockton line, . . . . .	Southwesterly, . . . . .	.80	73,119 23
Edgartown, . . . . .	1897-9-1900-1-2-3, . . . . .	Oak Bluffs line, . . . . .	Southerly, . . . . .	2.42	9,279 76
Erving, . . . . .	1898-9-1900, . . . . .	Town hall to Orange line, . . . . .	Easterly, . . . . .	2.04	14,366 53
Erving, . . . . .	1907-9-10, . . . . .	Millers Falls, . . . . .	Easterly, . . . . .	3.26	41,938 46
Erving, . . . . .	1911, . . . . .	Near town hall, . . . . .	Northwesterly, . . . . .	.79	51,124 34
Erving, . . . . .	1912, . . . . .	Town hall (bridge), . . . . .	Northwesterly, . . . . .	.03	
Essex, . . . . .	1902-3, . . . . .	Essex River, . . . . .	Easterly and westerly, . . . . .	.35	
Essex, . . . . .	1912, . . . . .	Gloucester line, . . . . .	Westerly, . . . . .	1.11	
Fairhaven, . . . . .	1894-5, . . . . .	Mattapoisett line, . . . . .	Westerly, . . . . .	1.45	
Falmouth, . . . . .	1904, . . . . .	Bourne line to Woods Hole, . . . . .	Southerly, . . . . .	11.66	
Falmouth, . . . . .	1905-6-7-8-9-10, . . . . .	East Falmouth to Waquoit, . . . . .	Easterly, . . . . .	3.90	
Fitchburg, . . . . .	1894-5, . . . . .	Westminster line, . . . . .	Easterly, . . . . .	.97	
Fitchburg, . . . . .	1897, . . . . .	Lunenburg line, . . . . .	Westerly, . . . . .	.60	
Fitchburg, . . . . .	1900-1-3-4, . . . . .	Ashby line, . . . . .	Southerly, . . . . .	2.55	

1 Exclusive of 800 feet at railroad crossing.

2 Exclusive of 6,243 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed (Miles).	Construction expenditures to Dec. 1, 1912.
		From —	Direction.	Length (Miles).		
Foxborough, . . . . .	1901-2, . . . . .	Mansfield line, . . . . .	Northerly, . . . . .	1.81	1.81	\$19,537 02
Foxborough, . . . . .	1905-8, . . . . .	Wrentham line, . . . . .	Southeasterly, . . . . .	1.70	1.70	
Framingham, . . . . .	1904-5, . . . . .	Southborough line, Pleasant Street, . . . . .	Southeasterly, . . . . .	2.42	2.42	17,261 67
Framingham, . . . . .	1910, . . . . .	Ashland line, Hollis Street, . . . . .	Northerly, . . . . .	.79	.79	
Franklin, . . . . .	1905-7-10, . . . . .	Bellingham line, . . . . .	Northeasterly, . . . . .	2.58	2.58	29,713 89
Franklin, . . . . .	1911, . . . . .	Wrentham line, . . . . .	Northwesterly, . . . . .	1.18	1.18	
Freetown, . . . . .	1902-3, . . . . .	New Bedford line to Lakeville line, . . . . .	Northerly, . . . . .	3.19	3.19	18,524 71
Freetown, . . . . .	1908, . . . . .	Fall River line to Assonet, . . . . .	Northeasterly, . . . . .	.68	.68	
Gardner, . . . . .	1897-8, . . . . .	Templeton line, . . . . .	Easterly, . . . . .	2.38	2.38	44,487 05
Gardner, . . . . .	1900-1, . . . . .	Westminster line, . . . . .	Northwesterly, . . . . .	.98	.98	
Gill, . . . . .	1912, . . . . .	Bernardston line to Northfield line, . . . . .	Easterly, . . . . .	.28	.28	1,910 82
Gloucester, . . . . .	1894-5-8-1905-6-7, . . . . .	Manchester line to "Cut bridge," . . . . .	Northerly, . . . . .	3.46	3.46	47,961 90
Gloucester, . . . . .	1907, . . . . .	Rockport line, . . . . .	Southerly, . . . . .	.52	.52	
Goshen, . . . . .	1894-5-8, . . . . .	Williamsburg line, . . . . .	Northwesterly, . . . . .	2.46	2.46	46,440 20
Grafton, . . . . .	1897-9-1900-5, . . . . .	Millbury line, . . . . .	Southeasterly, . . . . .	2.05	2.05	33,704 92
Grafton, . . . . .	1912, . . . . .	Southerly end of 1905 section, . . . . .	Southerly, . . . . .	1.64	1.64	
Granby, . . . . .	1894-1902-5-6-8, . . . . .	South Hadley line, . . . . .	Easterly, . . . . .	2.26	2.26	44,129 38
Granby, . . . . .	1911, . . . . .	North Street, . . . . .	Easterly, . . . . .	1.50	1.50	
Great Barrington, . . . . .	1894-6-7-1902, . . . . .	Housatonic River bridge, . . . . .	Easterly, . . . . .	3.41	3.41	44,862 68

Greenfield, <sup>1</sup>	.	.	.	.	Washington Street,	.	Easterly,	.	1.33	1.33	43,610 11
Greenfield,	.	.	.	.	Bernardston line,	.	Southwesterly,	.	3.77	3.77	
Greenfield,	.	.	.	.	Point on Colrain Road,	.	Northerly,	.	.26	.26	
Groton,	.	.	.	.	Pepperell line,	.	Southeasterly,	.	1.41	1.41	25,906 25
Groveland,	.	.	.	.	Merrimac River bridge to West Newbury line,	.	Northeasterly,	.	1.72	1.72	22,613 35
Hadley,	.	.	.	.	Connecticut River to Amherst line,	.	Easterly,	.	4.69	4.69	73,337 00
Hamilton,	.	.	.	.	Ipswich line,	.	Southwesterly,	.	1.44	1.44	25,771 20
Hamilton,	.	.	.	.	Wenham line,	.	Northeasterly,	.	1.22	1.22	
Hancock,	.	.	.	.	Pittsfield line to New York State line,	.	Westerly,	.	3.23	3.23	51,926 79
Hanover,	.	.	.	.	Pembroke line,	.	Northwesterly,	.	1.85	1.85	9,041 43
Hardwick,	.	.	.	.	New Braintree line,	.	Northerly,	.	.82	.82	6,258 20
Harvard,	.	.	.	.	Boxborough line to Harvard Common,	.	Westerly,	.	2.31	2.31	29,361 41
Harwich,	.	.	.	.	Deunis line to Chatham line,	.	Easterly,	.	5.10	5.10	33,705 67
Harwich,	.	.	.	.	Chatham line to Brewster line,	.	Northerly,	.	1.38	1.38	
Hatfield,	.	.	.	.	Northampton line to Whately line,	.	Northerly,	.	3.54	3.54	52,102 14
Haverhill,	.	.	.	.	Kenoza Road to Merrimac line,	.	Easterly,	.	2.66	2.66	
Haverhill,	.	.	.	.	River and Maxwell Street to Methuen line,	.	Westerly,	.	2.63	2.63	82,658 00
Haverhill,	.	.	.	.	North Andover line,	.	Northeasterly,	.	.43	.43	
Hingham,	.	.	.	.	Weymouth Back River,	.	Easterly,	.	1.42	1.42	15,990 41
Hingham,	.	.	.	.	Near Cohasset line,	.	Westerly,	.	1.24	1.24	
Hinsdale,	.	.	.	.	Dalton line,	.	Southeasterly,	.	1.02	1.02	13,488 38

<sup>1</sup> Exclusive of 500 feet at Cheapside bridge and 1,000 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed (Miles).	Construction Expenditures to Dec. 1, 1912.
		From —	Direction.	Length (Miles).		
Holbrook, . . . . .	1894-6-1902, . . . . .	Weymouth line, . . . . .	Northwesterly, . . . . .	1.75	1.75	\$15,373 19
Holden, . . . . .	1898-1900-8, . . . . .	Worcester line to Jefferson village, . . . . .	Northwesterly, . . . . .	4.21	4.21	51,235 95
Holden, . . . . .	1905, . . . . .	Rutland line, . . . . .	Easterly, . . . . .	.52	.52	
Holliston, . . . . .	1906-7-10, . . . . .	Milford line, . . . . .	Northeasterly, . . . . .	3.32	3.32	38,574 67
Holliston, . . . . .	1911, . . . . .	Ashland line, . . . . .	Southerly, . . . . .	.73	.73	
Holliston, . . . . .	1912, . . . . .	Southerly end of 1911 section, . . . . .	Southerly, . . . . .	.88	.50	22,603 31
Holyoke, . . . . .	1905-6-10, . . . . .	Easthampton line, . . . . .	Southerly, . . . . .	4.16	4.16	
Hudson, . . . . .	1906-7, . . . . .	Brigham Street to Marlborough line, . . . . .	Southerly, . . . . .	1.14	1.14	8,142 03
Huntington, . . . . .	1895-6, . . . . .	Russell line, . . . . .	Westerly, . . . . .	1.01	1.01	28,076 28
Huntington, . . . . .	1903-6-9, . . . . .	Chester line, . . . . .	Southeasterly, . . . . .	1.25	1.25	
Ipswich, . . . . .	1907-8-9, . . . . .	Hamilton line to Ipswich Common, . . . . .	Northerly, . . . . .	2.13	2.13	40,534 59
Ipswich, . . . . .	1910-11, . . . . .	Rowley line, . . . . .	Southerly, . . . . .	2.29	2.29	
Kingston, . . . . .	1905-6, . . . . .	Duxbury line, . . . . .	Southerly, . . . . .	1.02	1.02	7,362 67
Lakeville, . . . . .	1901-2, . . . . .	Near Middleborough line, . . . . .	Southwesterly, . . . . .	3.57	3.57	55,345 08
Lakeville, . . . . .	1910-11, . . . . .	Freetown line, . . . . .	Northerly, . . . . .	3.55	3.55	
Lakeville, . . . . .	1912, . . . . .	Northwesterly end of 1911 section to Berkley line, . . . . .	Northwesterly, . . . . .	1.25	1.25	

Lancaster, <sup>2</sup>	1902, . . . . .	Clinton line to Sterling line, . . . . .	Northerly, . . . . .	1.25	1.25	7,342 74
Lanesborough, <sup>3</sup>	1911, . . . . .	Cheshire line, . . . . .	Southerly, . . . . .	1.72	1.72	20,509 26
Lanesborough, . . . . .	1912, . . . . .	Southerly end of 1911 section to Pittsfield line.	Southerly, . . . . .	.34	.34	
Lawrence, . . . . .	1896, . . . . .	Methuen line, . . . . .	Southerly, . . . . .	.27	.27	2,079 55
Lee, . . . . .	1894-5-6-1908-9, . . . . .	Lee Park to Strickland House, . . . . .	Easterly, . . . . .	2.86	2.86	
Lee, . . . . .	1912, . . . . .	Harrington Brook, . . . . .	Southeasterly, . . . . .	.27	.27	
Lee, . . . . .	1900, . . . . .	Lenox line to Lee village, . . . . .	Southerly, . . . . .	1.26	1.26	60,115 41
Lee, . . . . .	1906, . . . . .	Lenox line to Stockbridge Street, . . . . .	Southerly, . . . . .	1.03	1.03	
Lee (south), . . . . .	1906, . . . . .	Stockbridge line, Main Street, . . . . .	Easterly, . . . . .	.90	.90	
Leicester, <sup>4</sup>	1904-5-6-8-9, . . . . .	Worcester line to Spencer line, . . . . .	Westerly, . . . . .	4.87	4.87	67,156 63
Lenox, . . . . .	1899-1900-1, . . . . .	Lee line to Lenox village, Walker Street, . . . . .	Northerly, . . . . .	2.28	2.28	
Lenox, . . . . .	1904-5, . . . . .	Pittsfield line to Lenox village, . . . . .	Southerly, . . . . .	3.18	3.18	39,098 75
Lenox, . . . . .	1906, . . . . .	Lee line to Lenox village, Kemble Street, . . . . .	Northerly, . . . . .	2.20	2.20	
Leominster, . . . . .	1901-2, . . . . .	Sterling line, . . . . .	Northerly, . . . . .	2.18	2.18	21,432 81
Lexington, . . . . .	1895-6-7-8, . . . . .	Massachusetts Avenue, . . . . .	Westerly, . . . . .	3.44	3.44	37,802 09
Lexington, . . . . .	1900, . . . . .	Bedford line, . . . . .	Southeasterly, . . . . .	.85	.85	
Lincoln, . . . . .	1895-6-7, . . . . .	Lexington line to Concord line, . . . . .	Northwesterly, . . . . .	2.06	2.06	16,362 46
Littleton, . . . . .	1902-3-4, . . . . .	Acton line, Great Road, . . . . .	Northerly, . . . . .	2.65	2.65	
Littleton, . . . . .	1902, . . . . .	Westford line to Great Road, . . . . .	Southwesterly, . . . . .	.32	.32	14,129 74
Littleton, . . . . .	1912, . . . . .	Ayer line, . . . . .	Southeasterly, . . . . .	.86	.86	

<sup>1</sup> Exclusive of 67 feet at railroad bridge.<sup>3</sup> Exclusive of 1,280 feet at railroad crossing.<sup>2</sup> Exclusive of 1,100 feet at railroad crossing.<sup>4</sup> Exclusive of portion through Leicester village.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — Continued.

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed to Dec. 1, 1912.
		From —	Direction.	Length (Miles).	
Lowell (boulevard), . . .	1897, . . .	Tyngsborough line, . . .	Easterly, . . .	.97	.97
Lowell (Princeton Street), .	1897-8, . . .	Chelmsford line, . . .	Easterly, . . .	1.33	1.33
Lowell, . . .	1900, . . .	Tewksbury line, . . .	Northwesterly, . . .	.35	.35
Lunenburg, . . .	1898-9-1900-1-3-10, . .	Fitchburg line, . . .	Easterly, . . .	4.12	4.12
Lynn, . . .	1898, . . .	Saugus River to Sea Street, .	Northeasterly, . . .	.90	.90
Mansfield, . . .	1901, . . .	Foxborough line, . . .	Southwesterly, . . .	.72	.72
Mansfield, . . .	1906, . . .	Norton line, . . .	Northerly, . . .	.49	.49
Marion, . . .	1894-5-1911, . . .	Marion village to Wareham line, .	Northeasterly, . . .	1.59	1.59
Marion, . . .	1897-9-1901-2, . . .	Marion village to Mattapoisett line, .	Westerly, . . .	1.84	1.84
Marion, . . .	1903, . . .	Marion village to Rochester line, .	Northwesterly, . . .	2.14	2.14
Marlborough (east), . . .	1897-1902-3-4, . . .	Sudbury line to Hosmer Street, .	Westerly, . . .	3.10	3.10
Marlborough (west), . . .	1897-9-1900-1, . . .	Northborough line, . . .	Easterly, . . .	2.42	2.42
Marlborough, . . .	1908-11, . . .	Hudson line, . . .	Southerly and southwesterly, .	1.27	1.10
Marshfield, . . .	1894-1910, . . .	Duxbury line to North River bridge, .	Northwesterly, . . .	8.28	8.28
Mattapoisett, . . .	1894-5, . . .	Fairhaven line, . . .	Easterly, . . .	1.16	1.16
Mattapoisett, . . .	1900-1-3, . . .	Marion line, . . .	Westerly, . . .	2.05	2.05
Mashpee, . . .	1911, . . .	Palmouth line, . . .	Northeasterly, . . .	1.83	1.83
Mashpee, . . .	1912, . . .	Northerly end of 1911 section, . .	Northeasterly, . . .	1.35	1.35

Medford, . . . . .	1907, . . . . .	Somerville line <sup>1</sup> via Mystic Avenue, . . . . .	Northerly, . . . . .	.86	.86	30,974 24
Melrose, . . . . .	1906, . . . . .	Saugus line, Upham Street, . . . . .	Westerly, . . . . .	.40	.40	5,056 49
Merrimac, . . . . .	1897-8-9-1910, . . . . .	Haverhill line, . . . . .	Easterly, . . . . .	1.03	1.03	23,302 69
Merrimac, . . . . .	1901-3, . . . . .	Amesbury line, . . . . .	Southwesterly, . . . . .	1.20	1.20	
Methuen, . . . . .	1896-1908, . . . . .	Lawrence line to Haverhill line, . . . . .	Northeasterly, . . . . .	3.69	3.69	41,214 04
Methuen, . . . . .	1912, . . . . .	Dracut line, . . . . .	Northeasterly, . . . . .	1.19	.20	
Middleborough, . . . . .	1894-1903, . . . . .	Nemasket River to Rochester line, . . . . .	Southwesterly, . . . . .	8.98	8.98	61,515 36
Middleborough, . . . . .	1906-7-8, . . . . .	Bridgewater line to railroad bridge, . . . . .	Southerly, . . . . .	3.47	3.47	
Middleton, . . . . .	1912, . . . . .	North Andover line, . . . . .	Southwesterly, . . . . .	.61	.15	2,044 73
Milford, . . . . .	1904-5, . . . . .	Hopedale line via West Street, . . . . .	Southwesterly, . . . . .	1.75	1.75	
Milford, . . . . .	1909-10, . . . . .	Holliston line, . . . . .	Southwesterly, . . . . .	1.80	1.80	31,163 99
Millbury, . . . . .	1902, . . . . .	Worcester line to Grafton line, . . . . .	Southwesterly, . . . . .	.78	.78	
Millbury, . . . . .	1900-3-4, . . . . .	Worcester line, Main Street, . . . . .	Southerly, . . . . .	1.61	1.61	28,157 11
Millbury, . . . . .	1906, . . . . .	Sutton line, . . . . .	Northeasterly, . . . . .	.59	.59	
Milton, <sup>1</sup> . . . . .	1899-1900, . . . . .	Neponset River at Granite bridge, . . . . .	Southwesterly, . . . . .	.87	.87	11,344 26
Monson, . . . . .	1894, . . . . .	Railroad bridge toward Palmer, . . . . .	Northerly, . . . . .	.93	.93	
Monson, . . . . .	1901-5, . . . . .	Palmer line to Brimfield line, . . . . .	Southwesterly, . . . . .	.39	.39	16,178 94
Monson, . . . . .	1908, . . . . .	Palmer line, . . . . .	Easterly and westerly, . . . . .	.29	.29	
Montague, . . . . .	1898-9-1904-6-10, . . . . .	Third Street near L Street, Turners Falls, . . . . .	Easterly, . . . . .	4.05	4.05	52,031 60
Montague, . . . . .	1905-9, . . . . .	Connecticut River bridge, . . . . .	Northeasterly, . . . . .	1.68	1.68	
Nantucket, . . . . .	1894-1903, . . . . .	First milestone to Siasconset, . . . . .	Easterly, . . . . .	6.48	6.48	52,893 84

<sup>1</sup> Exclusive of 1,000 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed (Miles).	Construction Expenditures to Dec. 1, 1912.
		From —	Direction.	Length (Miles).		
Natick, . . . . .	1901, . . . . .	Wellesley line to Lincoln Square, . . . . .	Westerly, . . . . .	1.14	1.14	\$21,575 15
Natick, . . . . .	1903, . . . . .	Sherborn line to Cemetery Street, . . . . .	Easterly, . . . . .	2.06	2.06	
Needham, . . . . .	1901, . . . . .	Newton line, . . . . .	Westerly, . . . . .	1.00	1.00	11,313 34
Needham, . . . . .	1905, . . . . .	Charles River bridge, Chestnut Street, . . . . .	Northerly, . . . . .	1.03	1.03	
New Braintree, . . . . .	1897, . . . . .	Hardwick line to Ware line, . . . . .	Southerly, . . . . .	.17	.17	3,944 07
New Braintree, . . . . .	1903, . . . . .	New Braintree village, . . . . .	Northerly, . . . . .	.23	.23	
Newbury, . . . . .	1899-1906, . . . . .	Newburyport line to Rowley line, . . . . .	Southerly and southwesterly, . . . . .	4.23	4.23	33,335 26
Newburyport, . . . . .	1896-7-8, . . . . .	West Newbury line, . . . . .	Easterly, . . . . .	1.75	1.75	13,098 15
Newton, . . . . .	1901, . . . . .	Needham line, . . . . .	Easterly, . . . . .	1.03	1.03	6,554 87
Norfolk, . . . . .	1895, . . . . .	Walpole line to Wrentham line, . . . . .	Southwesterly, . . . . .	1.45	1.45	10,602 60
North Adams, . . . . .	1894-6-7, . . . . .	Williamstown line, . . . . .	Easterly, . . . . .	2.13	2.13	36,925 49
North Adams, . . . . .	1900-1-2-3, . . . . .	Ashland Street bridge to Adams line, . . . . .	Southerly, . . . . .	2.32	2.09	
North Andover, . . . . .	1900-2-4, . . . . .	Lawrence line, . . . . .	Southeasterly, . . . . .	1.90	1.90	
North Andover, . . . . .	1907-10-11, . . . . .	Osgood Street, Park, Pleasant and Court towards Haverhill line.	Northerly, . . . . .	3.02	3.02	71,429 91
North Andover, . . . . .	1912, . . . . .	Northerly end of 1911 section to Haverhill line.	Northerly, . . . . .	.69	.69	
Northampton, . . . . .	1894, . . . . .	Hadley bridge, . . . . .	Southwesterly, . . . . .	.56	.56	
Northampton, . . . . .	1897-8-9-1900-5, . . . . .	Easthampton line, . . . . .	Northeasterly, . . . . .	1.47	1.47	65,800 57
Northampton, . . . . .	1912, . . . . .	Easthampton line, River Road, . . . . .	Northerly, . . . . .	1.42	.30	
Northampton, . . . . .	1912, . . . . .	Hatfield line, Laurel Park Road, . . . . .	Southwesterly, . . . . .	.84	.28	



North Attleborough, .	1894-5-6-7-9,	. . .	Bruce Avenue to Attleborough line,	Southwesterly, .	. . .	3.60	24,168 98
Northborough (east), .	1897-8-1911,	. . .	Marlborough line, .	Southwesterly, .	. . .	1.80	1.80
Northborough (west), .	1900-2-4, .	. . .	Shrewsbury line, .	Easterly, .	. . .	2.19	2.19
Northborough (south), .	1897, .	. . .	Westborough line, .	Northwesterly, .	. . .	.47	.47
North Brookfield, .	1905-6-7-8-10,	. . .	Brookfield line, .	Northerly, .	. . .	2.25	2.25
Northfield, .	1901-2, .	. . .	Near Mill Brook, .	Southerly, .	. . .	1.16	1.16
Northfield, .	1912, .	. . .	New Hampshire line to Pine Street,	Southerly, .	. . .	1.25	.75
Northfield, .	1912, .	. . .	Barnardston line, .	Easterly, .	. . .	1.88	1.75
North Reading, .	1897-8-1901-3-11,	. . .	Andover line to Reading line, .	Southerly, .	. . .	2.54	2.54
Norton, .	1906, .	. . .	Mansfield line, .	Southerly, .	. . .	.50	.50
Norton, .	1908-9-11, .	. . .	Attleborough line to railroad station,	Easterly, .	. . .	4.19	4.19
Norwood (south), .	1897-9, .	. . .	Walpole line, .	Northerly, .	. . .	1.03	1.03
Norwood (north), .	1895-6, .	. . .	Westwood line, .	Southerly, .	. . .	1.02	1.02
Oak Bluffs, .	1894-5-6, .	. . .	Sengekontacket bridge, .	Northerly, .	. . .	2.37	2.37
Orange, .	1894-5-7, .	. . .	Athol line, .	Westerly, .	. . .	2.18	2.18
Orange, .	1900-1-3-4-5,	. . .	Erving line, .	Easterly, .	. . .	2.62	2.62
Orleans, .	1900-1-4, .	. . .	Brewster line to Eastham line,	Northeasterly, .	. . .	1.98	1.98
Orleans, .	1903-4-5, .	. . .	Brewster line towards Shattuck's Corner,	Northerly and Northwesterly, .	. . .	2.72	2.72
Oxford, .	1906-7, .	. . .	Auburn line, .	Southwesterly, .	. . .	.85	.85
Oxford, .	1908-9, .	. . .	Charlton line, .	Northeasterly, .	. . .	1.34	1.34
Palmer, .	1899-1900-1,	. . .	Tennyville to Monson line, .	Southeasterly, .	. . .	2.52	2.52
Palmer, .	1905-8, .	. . .	Near Quabog River to Warren line,	Easterly, .	. . .	5.29	5.29
Palmer, .	1906-8-9, .	. . .	Wilbraham line, .	Easterly, .	. . .	2.11	2.11
Palmer, .	1906-8-9, .	. . .	Wilbraham line, .	Easterly, .	. . .	2.11	2.11

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed (Miles).	Length constructed (Miles).	Construction Expenditures to Dec. 1, 1912.
		From —	Direction.				
Paxton, . . . . .	1895-1902, . . . . .	Worcester line, . . . . .	Northwesterly, . . . . .		3.60	3.60	\$48,202 62
Pembroke, . . . . .	1905, . . . . .	Hanover line, . . . . .	Southerly, . . . . .		.35	.35	2,943 64
Pepperell, <sup>1</sup> . . . . .	1907-10-11, . . . . .	Nashua River bridge, . . . . .	Northwesterly, . . . . .		2.00	2.00	23,541 69
Phillipston, . . . . .	1897-8-1902-4-9, . . . . .	Athol line to Templeton line, . . . . .	Easterly and northeasterly, . . . . .		2.78	2.78	31,102 16
Pittsfield, . . . . .	1894-8-1901-2, . . . . .	Hancock line, . . . . .	Easterly, . . . . .		3.05	3.05	
Pittsfield, . . . . .	1897-1906-7, . . . . .	Dalton line, . . . . .	Southwesterly, . . . . .		2.37	2.37	80,485 27
Pittsfield, . . . . .	1894-5, . . . . .	South Mountain Road to Lenox line, . . . . .	Southerly, . . . . .		1.58	1.58	
Plainville, . . . . .	1894-5-1911, . . . . .	Wrentham line to North Attleborough line, . . . . .	Southerly, . . . . .		2.30	2.30	6,075 98
Plymouth, . . . . .	1894-1904, . . . . .	Manomet village, . . . . .	Northerly, . . . . .		5.05	5.05	93,238 35
Plymouth, . . . . .	1907-10-11, . . . . .	Manomet village, . . . . .	Southerly, . . . . .		4.86	4.86	
Princeton, . . . . .	1897-1900-2-3, . . . . .	Princeton depot, . . . . .	Easterly, . . . . .		2.23	2.23	21,927 60
Provincetown, . . . . .	1901-3, . . . . .	Truro line to Allerton Street, . . . . .	Westerly, . . . . .		1.10	1.10	7,669 68
Quincy, . . . . .	1899, . . . . .	Chubbuck Street to Fore River bridge, . . . . .	Southeasterly, . . . . .		.49	.49	
Quincy, . . . . .	1902-9, . . . . .	Braintree line, . . . . .	Northerly, . . . . .		.95	.95	26,587 83
Quincy, . . . . .	1904, . . . . .	Randolph line to Milton line, . . . . .	Northerly, . . . . .		1.23	1.23	
Randolph, . . . . .	1902-3-9, . . . . .	Quincy line, . . . . .	Southeasterly, . . . . .		1.90	1.90	13,265 20
Raynham, . . . . .	1901-2-3, . . . . .	Taunton line, Dean Street, . . . . .	Northeasterly, . . . . .		1.48	1.48	
Raynham, . . . . .	1912, . . . . .	Southerly end of Hockamock Swamp, . . . . .	Southerly, . . . . .		.96	.96	24,640 83

Reading,	.	.	.	.	.	.	Stoneham line, .	.	.	.	Northerly,	.	.	.	1.07	1.07	29,074 15
Reading,	.	.	.	.	.	.	North Reading line, .	.	.	.	Southerly, .	.	.	.	2.67	2.67	
Rehoboth,	.	.	.	.	.	.	Seekonk line to Dighton line, .	.	.	.	Easterly, .	.	.	.	6.03	6.03	54,790 09
Rehoboth,	.	.	.	.	.	.	Swansea line to Seekonk line, .	.	.	.	Northwesterly, .	.	.	.	-	-	
Revere,	.	.	.	.	.	.	Boston line, .	.	.	.	Northeasterly, .	.	.	.	.58	.58	58,613 49
Revere,	.	.	.	.	.	.	Saugus line, .	.	.	.	Southwesterly, .	.	.	.	.67	.67	
Richmond,	.	.	.	.	.	.	Railroad station to Pittsfield line, .	.	.	.	Northerly,	.	.	.	4.02	4.02	33,210 96
Rochester,	.	.	.	.	.	.	Marion line to Acushnet line, .	.	.	.	Westerly, .	.	.	.	5.27	5.27	6,674 70
Rochester,	.	.	.	.	.	.	Middleborough line to Wareham line, .	.	.	.	Southeasterly, .	.	.	.	.90	.90	
Rockland,	.	.	.	.	.	.	Abington line to Hanover line, .	.	.	.	Easterly, .	.	.	.	2.35	2.35	13,442 30
Rockport,	.	.	.	.	.	.	Gloucester line, .	.	.	.	Northerly,	.	.	.	1.60	1.60	20,963 28
Rowley,	.	.	.	.	.	.	Newbury line, .	.	.	.	Southwesterly, .	.	.	.	2.90	2.90	21,727 44
Rowley,	.	.	.	.	.	.	Ipswich line, .	.	.	.	Northerly, .	.	.	.	.74	.74	
Russell,	.	.	.	.	.	.	Westfield line to Huntington line, .	.	.	.	Northeasterly, .	.	.	.	6.66	6.66	84,372 06
Rutland,	.	.	.	.	.	.	Holden line, .	.	.	.	Northwesterly, .	.	.	.	1.16	1.16	8,981 39
Salem,	.	.	.	.	.	.	Swampscott line, .	.	.	.	Northeasterly, .	.	.	.	1.40	1.40	18,080 66
Salisbury,	.	.	.	.	.	.	Town Creek, .	.	.	.	Northerly and southerly, .	.	.	.	1.43	1.43	
Salisbury,	.	.	.	.	.	.	Southerly end of 1905 section to Newbury- port bridge.	.	.	.	Southerly, .	.	.	.	.13	-	
Salisbury,	.	.	.	.	.	.	New Hampshire line to village, .	.	.	.	Southerly, .	.	.	.	2.41	2.41	45,894 11
Salisbury,	.	.	.	.	.	.	Amesbury line, .	.	.	.	Easterly, .	.	.	.	1.23	1.23	
Salisbury,	.	.	.	.	.	.	Easterly end of 1911 section, .	.	.	.	Southeasterly, .	.	.	.	.51	.51	

<sup>1</sup> Exclusive of 600 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed (Miles).	Construction Expenditures to Dec. 1, 1912.
		From —	Direction.	Length (Miles).		
Sandwich, . . . . .	1897-8-1900-2-10,	Barnstable line, . . . . .	Westerly, . . . . .	4.31	4.31	\$42,361 91
Sandwich, . . . . .	1912, . . . . .	Northwesterly end of 1911 section, . . . . .	Northwesterly, . . . . .	.85	.85	
Saugus, . . . . .	1899, . . . . .	Fox Hill bridge to Revere line, . . . . .	Southerly, . . . . .	1.60	1.60	34,731 92
Saugus, . . . . .	1906, . . . . .	Melrose line, . . . . .	Southeasterly, . . . . .	.19	.19	
Scituate, . . . . .	1894-1910, . . . . .	Cohasset line to Marshfield line, . . . . .	Southerly, . . . . .	5.37	5.37	49,005 45
Seekonk, . . . . .	1900-1-2-4,	Rehoboth line to Rhode Island line, . . . . .	Westerly, . . . . .	2.76	2.76	32,204 19
Seekonk, . . . . .	1910-11, . . . . .	Perry Avenue via Fall River Avenue, . . . . .	Southeasterly, . . . . .	2.51	2.51	
Sharon, . . . . .	1908, . . . . .	Foxborough line, . . . . .	Northeasterly, . . . . .	.64	.64	4,849 32
Sheffield, . . . . .	1912, . . . . .	Connecticut line via Under Mountain Road, . . . . .	Northeasterly, . . . . .	1.78	.45	3,806 21
Shelburne, . . . . .	1894-5-6, . . . . .	Bridge Street to Colrain line, . . . . .	Northeasterly, . . . . .	2.16	2.16	24,024 14
Shrewsbury, . . . . .	1895-1904, . . . . .	Worcester line to Northborough line, . . . . .	Northeasterly, . . . . .	4.86	4.86	48,948 67
Somerset, . . . . .	1895-1910, . . . . .	Slade's Ferry bridge, . . . . .	Northerly, . . . . .	5.38	5.38	
Somerset, . . . . .	1903-4-9, . . . . .	Slade's Ferry bridge to Swansea line, . . . . .	Northeasterly, . . . . .	2.40	2.40	66,364 84
Somerset, . . . . .	1909, . . . . .	Slade's Ferry bridge, Brayton Avenue, . . . . .	Northerly, . . . . .	.22	.22	
Somerville, . . . . .	1908, . . . . .	Medford line via Mystic Avenue, . . . . .	Southeasterly, . . . . .	1.16	1.16	35,822 22
Southampton, . . . . .	1905-9, . . . . .	Easthampton line, . . . . .	Southerly, . . . . .	.71	.71	13,948 99
Southborough, . . . . .	1902-5, . . . . .	Westborough line, . . . . .	Easterly, . . . . .	1.89	1.89	
Southborough, . . . . .	1907, . . . . .	Ashland line, . . . . .	Westerly, . . . . .	.65	.65	22,148 17
Southborough, . . . . .	1909, . . . . .	Framingham line, . . . . .	Southwesterly, . . . . .	1.15	1.15	

Southbridge, . . . . .	1902, . . . . .	Charlton line, . . . . .	Southwesterly, . . . . .	.91	.91	11,088 43
Southbridge, . . . . .	1907, . . . . .	Sturbridge line, . . . . .	Easterly, . . . . .	.45	.45	
South Hadley, . . . . .	1895-7-8-9-1900, . . . . .	Granby line to South Hadley Falls, . . . . .	Southwesterly, . . . . .	2.42	2.42	
South Hadley, . . . . .	1903-4-9, . . . . .	South Hadley Falls, . . . . .	Northerly, . . . . .	3.33	3.33	63,007 28
South Hadley, . . . . .	1912, . . . . .	Northerly end of 1909 section to Granby line, . . . . .	Northeasterly, . . . . .	1.31	1.31	
Spencer, . . . . .	1897-1900-1, . . . . .	Leicester line, . . . . .	Westerly, . . . . .	1.60	1.60	45,013 36
Spencer, . . . . .	1906-10-11, . . . . .	Brookfield line to Seven Mile River bridge, . . . . .	Easterly, . . . . .	1.46	1.46	
Sterling, . . . . .	1897-8, . . . . .	Near town hall, . . . . .	Southwesterly, . . . . .	1.29	1.29	
Sterling, . . . . .	1905-7-9, . . . . .	Lancaster line, . . . . .	Southwesterly, . . . . .	1.84	1.84	
Sterling, . . . . .	1906-7, . . . . .	Leominster line, . . . . .	Southerly, . . . . .	.56	.56	48,415 26
Sterling, <sup>1</sup> . . . . .	1912, . . . . .	Southerly end of 1898 section to West Boylston line, . . . . .	Southerly, . . . . .	1.41	1.30	
Stockbridge, . . . . .	1905-9, . . . . .	Lee line at South Lee, . . . . .	Westerly, . . . . .	1.06	1.06	23,500 43
Stockbridge, . . . . .	1906, . . . . .	Lee line at East Street, . . . . .	Southwesterly, . . . . .	2.24	2.24	
Stoneham, . . . . .	1897-8, . . . . .	South Street, . . . . .	Northerly, . . . . .	.57	.57	14,894 66
Stoneham, . . . . .	1900-1, . . . . .	Reading line, . . . . .	Southerly, . . . . .	1.01	1.01	
Stoughton, . . . . .	1902-3, . . . . .	Canton line to Lincoln Street, . . . . .	Southerly, . . . . .	1.16	1.16	
Stoughton, <sup>2</sup> . . . . .	1904-5, . . . . .	Easton line to Walnut Street, . . . . .	Northerly, . . . . .	2.14	2.14	21,030 80
Sturbridge, . . . . .	1897-1903-4-7-9, . . . . .	Southbridge line, . . . . .	Northwesterly, . . . . .	2.36	2.36	29,215 04
Sudbury, . . . . .	1897-8-1900-1-2-3, . . . . .	Marlborough line to Wayland line, . . . . .	Easterly, . . . . .	5.11	5.11	36,074 70
Sunderland, . . . . .	1897-1903-4-5-7-9, . . . . .	Connecticut River bridge, . . . . .	Southeasterly and southerly, . . . . .	1.56	1.56	22,919 54
Sutton, . . . . .	1899-1901-2, . . . . .	Millbury line, . . . . .	Southerly, . . . . .	1.46	1.46	
Sutton, . . . . .	1903-4, . . . . .	Douglas line at Manchaug, . . . . .	Northerly, . . . . .	.82	.82	15,405 41

<sup>1</sup> Exclusive of 220 feet at railroad bridge.<sup>2</sup> Exclusive of 250 feet at railroad bridge.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed (Miles).	Construction Expenditures to Dec. 1, 1912.
		From —	Direction.	Length (Miles).		
Swampscott, . . .	1897-1900-1, . . .	Salem line to Burrell Street, . . .	Southwesterly, . . .	1.49	1.49	\$29,433 53
Swansea, . . .	1903-6-9-10-11, . . .	Somerset line, . . .	Northwesterly, . . .	4.13	4.13	33,917 18
Swansea, . . .	1912, . . .	Connecting 1907 and 1911 sections, . . .	-	.59	.59	
Swansea, . . .	1903-7, . . .	Myles River bridge, . . .	Southeasterly, . . .	1.93	1.93	
Taunton, . . .	1895-6-8-9-1900-1, . . .	Dighton line, Winthrop Street, . . .	Easterly, . . .	2.94	2.94	45,162 00
Taunton, . . .	1905-6, . . .	Dighton line, Somerset Avenue, . . .	Northeasterly, . . .	1.07	1.07	
Taunton, . . .	1907, . . .	Railroad crossing, County Street, . . .	Southeasterly, . . .	.66	.66	
Taunton, . . .	1912, . . .	Raynham line, Broadway, . . .	Southerly, . . .	.38	.38	
Templeton, . . .	1899-1901-2-3, . . .	Gardner line at Otter River, . . .	Westerly, . . .	2.00	2.00	66,578 35
Templeton, . . .	1905-6-7-8-9, . . .	Phillipston line to Baldwinville, . . .	Northeasterly, . . .	3.69	3.69	
Tewksbury, . . .	1900-1-2-3-4-5-6, . . .	Lowell line to Wilmington line, . . .	Southeasterly, . . .	6.00	6.00	53,594 83
Tisbury, . . .	1894, . . .	Vineyard Haven to West Tisbury line, . . .	Southwesterly, . . .	1.93	1.93	14,611 70
Townsend, . . .	1896-1911, . . .	Groton line to Ashby line, . . .	Northwesterly, . . .	6.04	6.04	46,947 45
Truro, . . .	1895-1906, . . .	Wellfleet line via Kelley's Corner, . . .	Northerly, . . .	3.16	3.16	37,692 93
Tyngsborough, . . .	1895-6, . . .	Tyngsborough bridge to Lowell line, . . .	Southeasterly, . . .	2.95	2.95	53,922 10
Tyngsborough, . . .	1909, . . .	New Hampshire line, . . .	Southerly, . . .	1.87	1.87	
Tyngsborough, . . .	1910-11, . . .	Chelmsford line, . . .	Northerly, . . .	1.25	1.25	
Tyngsborough, . . .	1912, . . .	Northerly end of 1911 sections, . . .	Northwesterly, . . .	.70	.70	

Uxbridge, . . . . .	1897-8-1901-3, . . . . .	Blackstone line, . . . . .	Northwesterly, . . . . .	2.18	2.18
Uxbridge, . . . . .	1909-10, . . . . .	Blackstone River, . . . . .	Northwesterly, . . . . .	.76	.76
Uxbridge, . . . . .	1912, . . . . .	Northbridge line to Mumford River bridge, . . . . .	Southwesterly, . . . . .	.37	.30
Wales, . . . . .	1901, . . . . .	Brimfield line, . . . . .	Southwesterly, . . . . .	1.04	1.04
Walpole (south), . . . . .	1894-5-7-1900, . . . . .	Norfolk line, . . . . .	Northerly, . . . . .	2.60	2.60
Walpole (south), <sup>1</sup> . . . . .	1912, . . . . .	Northerly end of 1900 section, . . . . .	Northeasterly, . . . . .	.46	.06
Walpole (north), . . . . .	1897-8-1900-11, . . . . .	Norwood line, . . . . .	Southerly, . . . . .	1.97	1.97
Ware, . . . . .	1897-9-1900-3, . . . . .	New Braintree line, . . . . .	Southerly, . . . . .	2.28	2.28
Ware, . . . . .	1909-10, . . . . .	Junction of Palmer and Belchertown roads, . . . . .	Northeasterly, . . . . .	1.90	1.90
Wareham, . . . . .	1896-1901-6-7-10, . . . . .	Wewantit River bridge to High Street, . . . . .	Northeasterly, . . . . .	2.20	2.20
Wareham, . . . . .	1898-1901, . . . . .	Cohasset Narrows bridge, . . . . .	Westerly, . . . . .	1.82	1.82
Wareham, . . . . .	1905-6-7-8, . . . . .	Parker's Mills to Rochester line, . . . . .	Northwesterly, . . . . .	3.42	3.42
Wareham, . . . . .	1910, . . . . .	Wareham Narrows bridge, . . . . .	Easterly, . . . . .	.88	.88
Warren, . . . . .	1896-7-8-1907-8, . . . . .	Warren village to Palmer line, . . . . .	Westerly, . . . . .	2.68	2.68
Warren, . . . . .	1899-1900-1, . . . . .	Warren to West Brookfield line, . . . . .	Easterly, . . . . .	1.42	1.42
Watertown, . . . . .	1895-6, . . . . .	Waltham line, . . . . .	Easterly, . . . . .	.85	.85
Wayland, <sup>2</sup> . . . . .	1897-1900-3, . . . . .	Weston line to Sudbury line, . . . . .	Westerly, . . . . .	2.58	2.58
Webster, . . . . .	1908, . . . . .	Lake Street and Thompson Road, . . . . .	Southerly, . . . . .	.65	.65
Webster, . . . . .	1912, . . . . .	Southerly end of 1908 section to Connecticut line, . . . . .	Southerly, . . . . .	1.12	1.12
Webster, . . . . .	1911, . . . . .	Oxford line, . . . . .	Southerly, . . . . .	.84	.84
Wellesley, . . . . .	1901, . . . . .	Natick line to Blossom Street, . . . . .	Easterly, . . . . .	1.18	1.18

<sup>1</sup> Exclusive of 175 feet at railroad bridge.<sup>2</sup> Exclusive of 1,500 feet at railroad crossing and Concord River.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed to Dec. 1, 1912.
		From —	Direction.	Length (Miles).	
Wellfleet, . . . . .	1903-4-5-7, . . . . .	Eastham line, . . . . .	Northerly, . . . . .	4.65	\$9,364 18
Wenham, . . . . .	1897-1901-3, . . . . .	Beverly line to Hamilton line, . . . . .	Northerly, . . . . .	1.76	13,178 53
Westborough, . . . . .	1903-6, . . . . .	Southborough line, . . . . .	Southwesterly, . . . . .	2.27	22,570 37
Westborough, . . . . .	1897, . . . . .	Northborough line, . . . . .	Southeasterly, . . . . .	.72	
West Boylston, . . . . .	1897-8, . . . . .	Worcester line, . . . . .	Northerly, . . . . .	1.55	22,843 45
West Bridgewater, . . . . .	1900-1-2-4, . . . . .	Brookton line to Bridgewater line, . . . . .	Southerly, . . . . .	3.16	16,371 19
West Brookfield, . . . . .	1899, . . . . .	Ware line to Ware line, . . . . .	Southwesterly, . . . . .	.15	29,371 41
West Brookfield, . . . . .	1899-1900-1, . . . . .	Brookfield line, . . . . .	Northwesterly, . . . . .	1.51	
West Brookfield, . . . . .	1905, . . . . .	Warren line, . . . . .	Easterly, . . . . .	1.02	
Westfield, . . . . .	1894-6-8-9, . . . . .	West Springfield line, . . . . .	Westerly, . . . . .	2.22	46,019 84
Westfield, . . . . .	1898-9-1900-1-2, . . . . .	Russell line, . . . . .	Easterly, . . . . .	3.59	
Westford, . . . . .	1902-3, . . . . .	Littleton line, . . . . .	Northerly, . . . . .	3.25	13,571 35
Westford, . . . . .	1912, . . . . .	Chelmsford line to 1903 section, . . . . .	Southwesterly, . . . . .	1.70	
Westminster, . . . . .	1894-5-6-7-8-9, . . . . .	Fitchburg line, . . . . .	Southwesterly, . . . . .	3.00	55,138 67
Westminster, . . . . .	1903, . . . . .	Gardner line, . . . . .	Easterly, . . . . .	2.25	
West Newbury, . . . . .	1895-6-7-1903-4-5-6-9, . . . . .	Newburyport line to Groveland line, . . . . .	Westerly, . . . . .	5.09	58,726 45
Weston, . . . . .	1898-9, . . . . .	Wayland line to near Stony Brook, . . . . .	Easterly, . . . . .	3.15	16,209 94
Westport, . . . . .	1894-6-7-8, . . . . .	Dartmouth line, . . . . .	Westerly, . . . . .	4.25	49,641 19



West Springfield,	1895-6,	Tatham Hill,	Easterly and westerly,	1.91	1.91	19,784 13
West Springfield,	1912,	Westfield line,	Easterly,	.74	-	
West Tisbury,	1895-6-7-1904,	Tisbury line to Chilmark line,	Southwesterly,	5.35	5.35	20,713 90
Westwood,	1899-1900,	Norwood line to Dedham line,	Northerly,	1.05	1.05	8,072 82
Weymouth,	1894,	Holbrook line to Abington line,	Easterly,	.25	.25	
Weymouth,	1895-6-7,	Fore River to Back River,	Easterly,	1.75	1.75	45,706 10
Weymouth,	1903-4-7-8-10,	Broad Street via Washington to Abington line,	Southerly,	4.94	4.94	
Whately, <sup>1</sup>	1899-1901-2-3-4-5-6,	Deerfield line to Hatfield line,	Southerly,	3.89	3.89	35,494 80
Whitman,	1894-5-6,	Brockton line,	Easterly,	1.70	1.70	25,575 02
Wilbraham, <sup>2</sup>	1894-5-6-1901-3-4,	Springfield line to Palmer line,	Easterly,	4.82	4.82	49,267 06
Williamsburg,	1896-8-1901-3,	Goshen line,	Southwesterly,	2.65	2.65	34,688 22
Williamstown,	1907,	River Road from village,	Southerly,	.13	.13	35,062 03
Williamstown,	1895-6-8-1903,	North Adams line,	Westerly,	1.48	1.48	
Wilmington, <sup>3</sup>	1907-8,	Tewksbury line,	Southerly,	1.87	1.87	37,851 05
Wilmington,	1910-11,	Near Boston and Maine railroad depot,	Southerly,	1.81	1.81	
Winchendon,	1907,	Glen Allen Road via Maple Street,	Southwesterly,	1.35	1.35	9,323 30
Winchendon,	1907,	Millers River bridge, River Street,	Southwesterly,	.35	.35	
Winchester,	1899-1900,	Arlington line to Woburn line,	Northeasterly,	1.96	1.96	12,091 71
Windsor,	1897-1902-3,	Cumington line,	Westerly,	.98	.98	21,051 03
Windsor,	1906-7,	Cumington Road, Windsor post office,	Easterly,	.88	.88	

<sup>1</sup> Exclusive of 375 feet at railroad crossing and 800 feet at railroad bridge.<sup>2</sup> Exclusive of 1,763 feet at North Wilbraham village.<sup>3</sup> Exclusive of 300 feet at railroad bridge.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Concluded.*

TOWN OR CITY.	Year.	ROADS LAID OUT.			Length constructed (Miles).	Construction Expenditures to Dec. 1, 1912.
		From —	Direction.			
Woburn, . . . . .	1900-1-2, . . . . .	Winchester line to Burlington line, . . . . .	Northwesterly, . . . . .	2.03	2.03	820,247 05
Woburn, . . . . .	1912, . . . . .	Wilmington line, . . . . .	Southwesterly, . . . . .	.58		
Worcester, . . . . .	1896-7, . . . . .	Paxton line, . . . . .	Southeasterly, . . . . .	1.35	1.35	47,329 14
Worcester, . . . . .	1897-1903, . . . . .	Holden line, . . . . .	Southerly, . . . . .	1.50		
Worcester, . . . . .	1900-5, . . . . .	West Boylston line, . . . . .	Southerly, . . . . .	1.22	1.22	48,117 95
Wrentham, . . . . .	1899-1900-1, . . . . .	Plainville line, . . . . .	Northerly, . . . . .	2.23		
Wrentham, . . . . .	1897-8-1902, . . . . .	Norfolk line, . . . . .	Southeasterly, . . . . .	1.86	1.86	38,066 63
Wrentham, . . . . .	1912, . . . . .	Franklin line, . . . . .	Southeasterly, . . . . .	1.00		
Yarmouth (north), . . . . .	1894-5-6, . . . . .	Barnstable line to Dennis, . . . . .	Easterly, . . . . .	3.71	3.71	
Yarmouth (south), . . . . .	1895-6-7, . . . . .	Barnstable line to Bass River bridge, . . . . .	Easterly, . . . . .	5.09		

## APPENDIX F.

TABLE SHOWING TOWNS AND CITIES IN WHICH WORK HAS BEEN DONE DURING THE YEAR 1912, AND THE RESIDENT ENGINEERS ON SUCH WORK, TOGETHER WITH DATES OF BEGINNING AND ENDING.

Town or City.	County.	Layout.	Resident Engineer.	Date of Contract.	Date of Beginning.	Date of Ending.
Acton, . . . . .	Middlesex, . . . . .	1912, . . . . .	F. D. Sabin, . . . . .	July 2, 1912	July 20	Aug. 13
Acton, . . . . .	Middlesex, . . . . .	1912, . . . . .	M. D. Gill, . . . . .	July 2, 1912	Aug. 14	Nov. 23
Amesbury, . . . . .	Essex, . . . . .	1912, . . . . .	F. H. Morris, . . . . .	May 21, 1912	May 28	June 14
Amesbury, . . . . .	Essex, . . . . .	1912, . . . . .	L. P. Henderson, . . . . .	May 21, 1912	June 15	July 16
Ashby, . . . . .	Middlesex, . . . . .	1911, . . . . .	C. H. Norton, . . . . .	Sept. 5, 1911	May 9	Oct. 9
Ashby, . . . . .	Middlesex, . . . . .	1912, . . . . .	C. H. Norton, . . . . .	May 7, 1912	June 24	Oct. 9
Athol, . . . . .	Worcester, . . . . .	Surfacing, . . . . .	C. S. Tinkham, . . . . .	June 19, 1912	July 2	Sept. 1
Ayer, . . . . .	Worcester, . . . . .	1912, . . . . .	R. Barker, . . . . .	July 2, 1912	Oct. 29	Dec. 24
Barre, . . . . .	Worcester, . . . . .	Chapter 525, . . . . .	R. A. Vesper, . . . . .	Aug. 22, 1911	April 23	Aug. 3
Becket, . . . . .	Berkshire, . . . . .	1912, . . . . .	A. E. Page, . . . . .	Sept. 23, 1912	Nov. 13	Dec. 9
Bourne, . . . . .	Barnstable, . . . . .	1912, . . . . .	H. O. Parker, . . . . .	April 9, 1912	April 16	May 15
Bourne, . . . . .	Barnstable, . . . . .	1912, . . . . .	E. J. Dahill, . . . . .	April 9, 1912	May 15	June 29
Brookfield, . . . . .	Worcester, . . . . .	1912, . . . . .	H. Green, . . . . .	Aug. 13, 1912	Oct. 7	Nov. 20

TABLE SHOWING TOWNS AND CITIES IN WHICH WORK HAS BEEN DONE, ETC. — *Continued.*

Town or City.	County.	Layout.	Resident Engineer.	Date of Contract.	Date of Beginning.	Date of Ending.
Brookfield, . . . . .	Worcester, . . . . .	Chapter 525, . . . . .	H. Green, . . . . .	Aug. 20, 1912	Sept. 14	Nov. 20
Charlton, . . . . .	Worcester, . . . . .	1912, . . . . .	Earl P. Perry, . . . . .	July 30, 1912	Oct. 14	Dec. 31
Chelmsford, . . . . .	Middlesex, . . . . .	1911, . . . . .	J. R. Wolff, . . . . .	Aug. 8, 1911	April 6	May 15
Chelmsford, . . . . .	Middlesex, . . . . .	1912, . . . . .	R. Barker, . . . . .	May 15, 1912	June 3	Dec. 6
Chicopee (town), . . . . .	Hampden, . . . . .	Surfacing, . . . . .	E. S. Bingham, . . . . .	July 2, 1912	June 7	July 19
Chicopee (city), . . . . .	Hampden, . . . . .	Surfacing, . . . . .	E. S. Bingham, . . . . .	May 22, 1912	May 10	July 19
Deerfield, . . . . .	Franklin, . . . . .	Surfacing, . . . . .	C. S. Tinkham, . . . . .	May 8, 1912	May 22	July 1
Dighton, . . . . .	Bristol, . . . . .	1912, . . . . .	H. O. Parker, . . . . .	June 11, 1912	Sept. 28	Nov. 16
Dighton, . . . . .	Bristol, . . . . .	1912, . . . . .	C. E. Norwood, . . . . .	June 11, 1912	July 28	Sept. 28
Draut, . . . . .	Middlesex, . . . . .	1912, . . . . .	R. W. Coburn, . . . . .	Sept. 12, 1912	Oct. 4	Dec. 31
Draut, . . . . .	Middlesex, . . . . .	1912, . . . . .	J. R. Wolff, . . . . .	Sept. 12, 1912	Oct. 4	Dec. 31
Erving (bridge), . . . . .	Franklin, . . . . .	1912, . . . . .	C. G. Richmond, . . . . .	Aug. 16, 1912	Aug. 29	Nov. 11
Erving, . . . . .	Franklin, . . . . .	1911, . . . . .	H. M. McCue, . . . . .	July 29, 1911	May 3	July 1
Erving, . . . . .	Franklin, . . . . .	1911, . . . . .	C. G. Richmond, . . . . .	July 29, 1911	July 1	Sept. 4
Essex, . . . . .	Essex, . . . . .	1912, . . . . .	L. P. Henderson, . . . . .	Nov. 7, 1912	Nov. 19	Dec. 31
Egremont, . . . . .	Berkshire, . . . . .	Chapter 525, . . . . .	G. N. Willis, . . . . .	Aug. 9, 1911	July 9	July 29
Fitchburg, . . . . .	Worcester, . . . . .	Surfacing, . . . . .	E. N. Briggs, . . . . .	June 19, 1912	July 26	Sept. 27
Florida, . . . . .	Berkshire, . . . . .	Special, . . . . .	H. D. Phillips, . . . . .	Sept. 11, 1912	Sept. 23	Dec. 31



TABLE SHOWING TOWNS AND CITIES IN WHICH WORK HAS BEEN DONE, ETC. — *Concluded.*

Town or City.	County.	Layout.	Resident Engineer.	Date of Contract.	Date of Beginning.	Date of Ending.
Methuen, . . . . .	Essex, . . . . .	1912, . . . . .	R. W. Coburn, . . . . .	Sept. 12, 1912	Oct. 4	Dec. 31
Methuen, . . . . .	Essex, . . . . .	1912, . . . . .	J. R. Wolff, . . . . .	Sept. 12, 1912	Oct. 4	Dec. 31
Middleborough (bridge), . . . . .	Plymouth, . . . . .	1912, . . . . .	A. H. Briggs, . . . . .	July 23, 1912	Aug. 19	Nov. 16
Middleton, . . . . .	Essex, . . . . .	1912, . . . . .	L. P. Henderson, . . . . .	Sept. 17, 1912	Sept. 30	Dec. 31
Northampton, . . . . .	Hampshire, . . . . .	1912, . . . . .	E. O. Knight, . . . . .	Sept. 9, 1912	Oct. 19	Dec. 31
North Andover, . . . . .	Essex, . . . . .	1912, . . . . .	J. R. Wolff, . . . . .	April 25, 1912	May 7	Sept. 21
Northfield, . . . . .	Franklin, . . . . .	1912, . . . . .	E. R. Hyde, . . . . .	Sept. 9, 1912	Oct. 4	Dec. 17
Northfield, . . . . .	Franklin, . . . . .	1912, . . . . .	W. G. Burns, . . . . .	May 17, 1912	June 12	June 20
Northfield, . . . . .	Franklin, . . . . .	1912, . . . . .	E. R. Hyde, . . . . .	May 17, 1912	June 20	Oct. 23
Northfield, . . . . .	Franklin, . . . . .	1912, . . . . .	L. R. Sellow, . . . . .	May 17, 1912	Oct. 24	Dec. 14
Orange, . . . . .	Franklin, . . . . .	Surfacing, . . . . .	C. S. Tinkham, . . . . .	June 19, 1912	July 2	Sept. 1
Plymouth, . . . . .	Plymouth, . . . . .	1911, . . . . .	C. R. Mosher, . . . . .	Aug. 15, 1911	March 20	July 20
Plymouth, . . . . .	Plymouth, . . . . .	1912, . . . . .	W. M. Stodder, . . . . .	Aug. 20, 1912	Sept. 2	Sept. 26
Plymouth, . . . . .	Plymouth, . . . . .	1912, . . . . .	E. J. Dahill, . . . . .	Aug. 20, 1912	Sept. 26	Nov. 14
Rayham, . . . . .	Bristol, . . . . .	1912, . . . . .	H. C. Holden, . . . . .	July 23, 1912	Sept. 6	Nov. 9
Rehoboth, . . . . .	Bristol, . . . . .	1912, . . . . .	H. O. Parker, . . . . .	Sept. 10, 1912	Oct. 14	Dec. 14
Salisbury, . . . . .	Essex, . . . . .	1911, . . . . .	F. H. Morris, . . . . .	Sept. 20, 1911	April 29	June 14
Salisbury, . . . . .	Essex, . . . . .	1911, . . . . .	L. P. Henderson, . . . . .	Sept. 20, 1911	June 15	July 2

[illegible]

## APPENDIX G.

## SHOWING CONTRACT PRICES ON

TOWN OR CITY.	Contract Number.	Contractor.	BITUMINOUS SURFACING.		EXCAVATION			Con- crete Masonry.
			Oil (Square Yard).	Tar (Square Yard).	All Kinds (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).	
Acton, . . . .	1509	Martin & Condon, . .	\$0 06	-	\$0 50	\$0 70	\$2 50	\$12 00
Amesbury, . . .	1493	James E. Watkins, . .	<sup>2</sup> 12	-	50	77½	2 00	8 00
Ashby, . . . .	1487	Town of Ashby, . . .	-	-	50	55	2 25	8 00
Athol-Orange, . .	1501	Lane Construction Cor- poration.	<sup>2</sup> 10	<sup>7</sup> 50	1 00	-	-	-
Ayer-Littleton, . .	1540	Harvey W. Tarbell, .	<sup>3</sup> 12	-	60	70	2 00	19 00
Becket, . . . .	1528	Luigi C. Carchia, . .	-	-	70	1 00	70	10 00
Bourne, . . . .	1483	Herbert L. Thomas, .	<sup>3</sup> 18	-	50	50	2 00	15 00
Brookfield, . . .	1519	Town of Brookfield, .	<sup>1</sup> 90	<sup>12</sup> 08½	70	90	-	10 00
Charlton, . . . .	1515	Richmond F. Hudson, .	-	-	60	1 00	1 50	10 00
Chicopee, . . . .	1505	Lane Construction Cor- poration.	-	20	55	-	<sup>13</sup> 1 25	-
Chicopee, . . . .	1494	Lane Construction Cor- poration.	-	<sup>3</sup> 10	55	1 00	<sup>13</sup> 1 25	-
Deerfield-Greenfield,	1489	Lane Construction Cor- poration.	-	<sup>3</sup> 10	-	-	-	-
Dighton, . . . .	1499	Herbert L. Thomas, .	<sup>3</sup> 18	-	60	60	2 00	20 00
Dracut-Methuen, .	1532	Joseph Wagenbach & Son,	<sup>12</sup> 10	<sup>17</sup> 12	55	55	2 00	13 00
Erving, . . . .	1516	Luigi C. Carchia, . .	<sup>21</sup> 1 25	<sup>22</sup> 00	1 00	1 00	<sup>23</sup> 1 50	18 00
Essex, . . . .	1541	Walter Cressy, . . .	<sup>3</sup> 09	-	50	65	2 00	10 00
Fitchburg, . . . .	1500	Lane Construction Cor- poration.	10	-	1 00	<sup>13</sup> 1 50	-	-
Gardner-Templeton,	1502	Richmond F. Hudson, .	<sup>2</sup> 12	<sup>7</sup> 10	-	-	-	-
Grafton, . . . .	1482	Luigi C. Carchia, . .	<sup>12</sup> 09	<sup>21</sup> 10	48	64	2 00	8 00
Great Barrington, .	1543	H. I. Peer, . . . .	-	-	60	-	3 00	-
Haverhill, . . . .	1511	David J. Sheehan & John J. Rourke.	13	-	45	60	50	9 00
Holliston, . . . .	1517	Antonio Carchia, . .	10	<sup>28</sup> 1 40	60	80	2 00	10 00
Lakeville, . . . .	1488	Town of Lakeville, . .	<sup>3</sup> 12	<sup>18</sup> 5	50	-	2 00	9 00
Lanesborough, . .	1510	Edward Crowe & Dan'l J. Walsh.	10	<sup>19</sup> 0	50	50	1 25	8 00
Littleton, . . . .	1506	Richmond F. Hudson, .	22	<sup>11</sup> 00	-	-	-	-

<sup>1</sup> Gravel per cubic yard.<sup>2</sup> Double penetration method.<sup>3</sup> Exclusive of bituminous material.<sup>4</sup> Ten-inch clay pipe.<sup>5</sup> Cobble stone gutters.<sup>6</sup> Sixteen-inch iron pipe.<sup>7</sup> Blanket coat method.<sup>8</sup> Including pea stone.<sup>9</sup> Eight-inch clay pipe.<sup>10</sup> Eight-inch iron pipe.<sup>11</sup> Sand binder per cubic yard.<sup>12</sup> Per gallon.<sup>13</sup> Broken stone excavated per cubic yard.<sup>14</sup> Broken pea stone per ton.<sup>15</sup> No. 2 stone.<sup>16</sup> Rock embankment.



## APPENDIX G.

## STATE ROADS DURING 1912.

BROKEN STONE.		PIPE CULVERTS (PER LINEAL FOOT).						Fencing (Lineal Foot).	Side Drains (Lineal Foot).	Stone Filling for Under- drains (per Cubic Yard).	Bounds (Each).	Catch-basins (Each).
Local (Ton).	Trap (Ton).	CLAY.			IRON.							
		Twelve-inch.	Eighteen-inch.	Twenty-four-inch.	Twelve-inch.	Eighteen-inch.	Twenty-four-inch.					
\$1 90	1\$1 15	-	-	-	-	-	-	\$0 30	-	-	\$1 50	-
-	1 95	\$0 65	\$1 25	4\$0 55	-	-	-	30	-	5\$0 90	1 50	\$25 00
1 69	-	-	-	-	\$2 25	6\$2 50	-	30	-	-	2 00	-
-	82 35	-	-	-	-	-	-	-	-	-	-	-
82 05	185	95	1 25	465	-	-	-	35	-	-	1 75	-
1 75	-	-	-	-	2 25	4 00	-	35	-	1 25	3 00	40 00
-	82 35	970	-	-	101 75	-	-	35	-	-	2 00	30 00
-	81 95	-	-	-	-	-	-	-	-	1 20	-	-
1 60	-	70	-	-	-	-	-	30	-	1 00	2 00	-
142 70	182 60	-	-	-	-	-	-	-	-	2 70	-	-
142 70	2 60	-	-	-	-	-	-	-	-	2 70	-	-
-	82 10	-	-	-	-	-	-	-	-	-	-	-
82 20	161 00	-	1 40	-	-	-	-	30	-	1 00	2 00	-
1 60	180	65	185 00	-	193 00	-	-	25	\$0 40	2055	2 00	30 00
-	-	-	-	-	-	-	-	-	-	-	-	-
81 65	244 00	75	1 40	2585	-	-	-	30	-	-	2 00	-
1 75	-	-	-	-	-	-	-	-	-	1 20	-	-
-	82 35	-	-	-	-	-	-	-	-	-	-	-
-	185	75	1 50	-	-	-	-	28	-	1 00	2 00	25 00
2675	11 30	-	-	-	-	-	-	-	-	1 25	-	-
-	82 00	60	-	-	-	-	-	30	271 00	-	1 25	30 00
190	-	80	1 50	470	-	-	-	35	-	-	2 00	30 00
81 50	-	75	-	-	292 00	-	-	30	-	1 00	2 00	-
-	81 90	-	-	-	-	3 00	-	30	-	-	1 50	-
81 75	-	-	-	-	-	-	-	-	-	-	-	-

<sup>17</sup> Cannot be heated in tank cars.<sup>18</sup> For walls.<sup>19</sup> Twenty-inch iron pipe.<sup>20</sup> Not exceeding 4 feet in depth.<sup>21</sup> Concrete surfacing.<sup>22</sup> Tar concrete for sidewalk.<sup>23</sup> Excavation for bridge per cubic yard.<sup>24</sup> Dry rubble masonry per cubic yard.<sup>25</sup> Fifteen-inch clay pipe.<sup>26</sup> Screening and replacing broken stone.<sup>27</sup> Cobble stone gutters per square yard.<sup>28</sup> Screened gravel per cubic yard.<sup>29</sup> Ten-inch iron pipe.

## SHOWING CONTRACT PRICES ON

TOWN OR CITY.	Contract Number.	Contractor.	BITUMINOUS SURFACING.		EXCAVATION.			Portland Cement Concrete Masonry.
			Oil (Square Yard).	Tar (Square Yard).	All Kinds (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).	
Mashpee, . . .	1507	Lane Quarry Company, .	\$0 38	-	\$0 60	\$0 60	\$2 00	\$11 00
Middleborough, . . .	1513	Powers Bros., . . .	-	-	<sup>21</sup> 80	1 00	-	18 50
Middleton, . . .	1529	James E. Watkins, . . .	<sup>41</sup> 12	\$0 20	57 <sup>1</sup> / <sub>2</sub>	60	2 00	11 75
Northampton, . . .	1526	City of Northampton, .	<sup>50</sup> 5	<sup>46</sup> 5	60	65	2 00	10 00
Northampton, . . .	1536	Crowe & Walsh, . . .	<sup>50</sup> 5	<sup>31</sup> 10	50	55	1 50	10 00
North Andover, . . .	1485	David J. Sheehan & John J. Rourke.	13	-	45	60	50	9 00
Northfield, . . .	1538	Town of Northfield, .	-	-	60	<sup>107</sup> / <sub>5</sub>	2 00	13 00
Northfield-Gill, . . .	1492	Crowe & Walsh, . . .	-	<sup>49</sup> / <sub>5</sub>	41	55	1 25	7 50
Norton, . . .	1530	Herbert L. Thomas, .	-	<sup>48</sup> / <sub>5</sub>	70	60	2 00	12 00
Plymouth, . . .	1522	Herbert L. Thomas, .	42	-	50	-	-	-
Provincetown, . . .	1504	Chas. W. Snow, . . .	-	-	<sup>182</sup> / <sub>34</sub>	-	-	-
Raynham, . . .	1514	Richmond F. Hudson, .	-	14	60	1 00	2 00	12 00
Rehoboth-Swansea, .	1525	Thomas J. Quinn, . . .	16	-	60	70	3 00	10 00
Salisbury, . . .	1545	James E. Watkins, . . .	-	<sup>196</sup> / <sub>21</sub>	49	60	2 00	10 00
Salisbury, . . .	1497	Town of Salisbury, . . .	23	<sup>41</sup> / <sub>5</sub>	50	50	2 00	10 00
Sandwich, . . .	1495	Lane Quarry Company, .	36	-	40	45	2 00	10 00
Sheffield, . . .	1524	Town of Sheffield, . . .	10	<sup>41</sup> / <sub>5</sub>	60	70	2 00	11 00
Shelburne, . . .	1508	Richmond F. Hudson, .	-	-	60	60	2 25	<sup>201</sup> / <sub>4</sub> 00
South Hadley, . . .	1498	Town of South Hadley, .	<sup>47</sup> / <sub>5</sub>	<sup>21</sup> / <sub>5</sub> 00	60	65	1 75	9 50
Sterling, . . .	1518	James H. Fannon, . . .	40	<sup>41</sup> / <sub>5</sub> 25	60	70	2 50	10 00
Sutton, . . .	1531	Ambrose Newell, Jr., .	<sup>24</sup> / <sub>-</sub>	<sup>25</sup> / <sub>-</sub>	-	-	-	-
Tyngsborough, . . .	1484	Hub Construction Company.	10	-	50	60	2 00	10 00
Uxbridge, . . .	1534	New England Contracting Company.	-	11 <sup>1</sup> / <sub>2</sub>	55	60	2 00	9 00
Walpole, . . .	1537	Snow & Farrington, .	-	28	65	75	2 00	16 00
Westford-Chelmsford, .	1491	Francis J. Mague, . . .	-	-	55	70	2 00	10 00
West Springfield, . . .	1535	Lane Construction Corporation.	-	<sup>51</sup> / <sub>5</sub>	60	90	2 00	10 00
Windsor, . . .	1544	Wm. R. Pratt, . . .	-	<sup>261</sup> / <sub>5</sub> 00	45	1 50	3 00	10 00
Woburn, . . .	1496	City of Woburn, . . .	23	<sup>41</sup> / <sub>5</sub> 25	60	-	2 00	9 00
Wrentham, . . .	1527	Town of Wrentham, . . .	-	<sup>41</sup> / <sub>5</sub> 00	50	60	2 00	13 50

<sup>1</sup> Eight-inch clay pipe.<sup>2</sup> Excavation for bridge per cubic yard.<sup>3</sup> Rip-rap per cubic yard.<sup>4</sup> Gravel per cubic yard.<sup>5</sup> Per gallon.<sup>6</sup> Including pea stone.<sup>7</sup> Corrugated pipe.<sup>8</sup> Cobble stone gutters per square yard.<sup>9</sup> Fifteen-inch clay pipe.<sup>10</sup> Gravel borrow.<sup>11</sup> Portland cement concrete masonry for bridge per cubic yard.<sup>12</sup> Sixteen-inch corrugated pipe.<sup>13</sup> Ten-inch clay pipe.<sup>14</sup> Ten-inch iron pipe.<sup>15</sup> Hardening subgrade.

STATE ROADS DURING 1912 — *Concluded.*

BROKEN STONE.		PIPE CULVERTS (PER LINEAL FOOT).						Fencing (Lineal Foot).	Side Drains (Lineal Foot).	Stone Filling for Under- drains (per Cubic Yard).	Bounds (Each).	Catch-basins (Each).
Local (Ton).	Trap (Ton).	CLAY.			IRON.							
		Twelve-inch.	Eighteen-inch.	Twenty-four-inch.	Twelve-inch.	Eighteen-inch.	Twenty-four-inch.					
-	-	150 70	-	-	-	-	-	\$0 32	-	-	\$3 00	\$35 00
\$3 00	350	-	-	-	-	-	-	30	-	-	-	-
1 77½	-	-	-	-	-	-	-	30	-	-	2 00	-
61 41	-	71 22	-	-	-	-	-	30	-	\$0 90	2 00	-
-	62 00	-	-	-	\$2 00	-	-	25	-	1 00	2 00	35 00
81 00	62 00	60	\$1 25	\$0 80	-	-	-	30	-	-	1 25	30 00
1 90	118 00	71 30	121 75	1375	-	-	-	30	-	90	2 00	30 00
-	-	75	-	-	2 00	142 00	-	28	-	1 30	2 00	35 00
1 65	-	170	1 50	-	-	-	-	30	-	1 20	-	-
151 10	-	-	-	-	-	-	-	-	-	-	-	-
172 00	-	-	-	-	-	-	-	-	-	-	-	-
61 80	-	70	160	-	181 75	-	-	40	-	1 00	2 00	35 00
61 90	-	1 00	91 50	-	141 50	-	-	40	-	1 20	2 00	50 00
-	-	55	1347½	-	-	-	-	-	-	-	4 00	29 00
1 80	-	-	1 50	-	1 50	-	-	30	-	-	2 00	30 00
-	-	91 50	-	-	-	-	-	30	-	-	2 00	-
-	-	-	-	-	71 45	71 75	-	30	-	90	2 00	-
214 00	-	-	-	-	1 10	221 40	-	30	230 22	80	-	-
112 00	2 00	150	182 40	-	2 50	3 50	223 00	30	-	-	2 00	30 00
-	-	90	91 00	-	143 50	-	-	35	-	-	2 00	30 00
-	-	-	-	-	-	-	-	-	-	-	-	-
-	61 70	1360	1 35	975	141 90	222 50	-	35	-	-	1 75	30 00
61 79	-	75	-	-	-	-	-	30	-	-	2 00	30 00
62 00	41 00	170	-	-	-	-	-	40	-	1 50	3 00	-
41 05	-	75	1 50	1360	-	-	-	30	-	-	2 00	30 00
-	61 90	80	-	-	3 00	-	-	30	-	1 00	2 00	-
1 50	215 00	71 20	71 55	72 00	115 00	-	-	29	-	1 50	-	-
-	2 00	75	1365	-	2 25	-	-	30	-	-	2 00	30 00
118 00	-	-	-	-	142 00	-	-	30	-	85	2 00	-

16 Bulkhead in place.

17 Rip-rap in place, etc. (except rip-rap stone), per ton.

18 Eight-inch iron pipe.

19 Gravel surfacing per cubic yard.

20 Including Portland cement.

21 Dry rubble masonry per cubic yard.

22 Sixteen-inch iron pipe.

23 Rustic guard rail.

24 Repairing bridge, \$125.

25 Rebuilding and repairing bridge, \$665.

26 Bridge excavation except ledge, cubic yard.

## APPENDIX H.

## STATEMENT OF CLAIMS AGAINST THE COMMISSION.

[As required by section 5, chapter 18 of the Revised Laws.]

NAME.	Residence.	Nature of Claim.
Bishop, Emeline, . . .	Rowley, . . .	Damages due to construction of State highway in Ipswich.
Coleman, Martin W., . .	Richmond, . . .	Damages due to construction of State highway in Richmond.
Connelly, William H., . .	Lanesborough, . .	Damages due to construction of State highway in Lanesborough.
Cooper, Frederic P., . .	Attleborough, . .	Damages due to construction of State highway in Attleborough.
Donovan, John, . . .	Ipswich, . . .	Damages due to construction of State highway in Ipswich.
Flagg, Lucretia T., . .	Northampton, . .	Damages due to construction of State highway in Northampton.
Kinmond, John D., . .	Boston, . . .	Damages due to accident alleged to have occurred on State highway in Salisbury.
Laycock, Berry, . . .	Franklin, . . .	Damages due to construction of State highway in Franklin.
Nourse, Joseph P., . .	Marlborough, . .	Damages due to construction of State highway in Marlborough.
Perley, Osborne, . . .	Ipswich, . . .	Damages due to construction of State highway in Ipswich.
Phillips, Martha B., <i>et al.</i> , . .	Cambridge, . . .	Damages due to construction of State highway in Bourne.
Reed, William H., . . .	Gloucester, . . .	Damages due to accident alleged to have occurred on State highway in Gloucester.
Rogerson, Sophia, . . .	Lanesborough, . .	Damages due to construction of State highway in Lanesborough.
Seabury, Phoebe W., . .	Dartmouth, . . .	Damages due to construction of State highway in Dartmouth.
Stevens, John A., and Priscilla, . . .	Lanesborough, . .	Damages due to construction of State highway in Lanesborough.
Taft, Kate P., . . .	Northampton, . .	Damages due to construction of State highway in Northampton.
Talbot, Joseph, . . .	Taunton, . . .	Damages due to construction of State highway in Taunton.
Thomas, Herbert L., . .	Middleborough, . .	Extra allowances under contract for resurfacing State highway in Holyoke.

## APPENDIX I.

## MAINTENANCE.

Table showing the Amounts expended for Repair and Maintenance, the Cost per Mile for Maintenance during 1912, the Cost per Mile per Year on Each Road, the Number of Miles under Maintenance and the Amounts to be assessed upon Municipalities for Maintenance under Chapter 47 of the Revised Laws.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1912.			Cost per Mile per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	REVENUE APPROPRIATION.			MOTOR VEHICLE FEES FUND.				From Revenue Appropriation.	From Motor Vehicle Fees Fund.	Total.			
	To 1912.	During 1912.	Total.	To 1912.	During 1912.	Total.							
Abington, . . .	\$1,748 28	\$440 39	\$2,188 67	\$50 40	\$4,479 25	\$4,529 65	\$6,718 32	\$101 94	\$1,036 86	\$1,138 80	\$75 97	4.32	\$216 00
Acton, . . .	4,221 40	687 55	4,908 95	3,172 88	-	3,172 88	8,081 83	114 02	-	114 02	85 51	6.03	301 50
Acushnet, . . .	5,140 16	537 08	5,677 24	-	2,769 34	2,769 34	8,446 58	157 50	812 09	969 59	150 31	3.41	170 50
Adams, . . .	3,971 13	684 00	4,655 13	1,504 45	6 80	1,511 25	6,166 38	336 95	3 35	340 30	319 50	2.03	101 50
Agawam, . . .	1,713 43	926 10	2,639 53	2,433 49	6,956 98	9,390 47	12,030 00	232 11	1,743 60	1,975 71	131 19	3.99	199 50
Anesbury, . . .	4,077 46	345 04	4,422 50	228 88	-	228 88	4,651 38	104 56	-	104 56	169 19	3.30	165 00
Amherst, . . .	1,198 79	202 60	1,401 39	1,530 74	-	1,530 74	2,932 13	208 87	-	208 87	140 56	.97	48 50
Andover, . . .	12,189 16	762 68	12,951 84	3,322 34	6,377 56	9,699 90	22,651 74	182 02	1,522 09	1,704 11	240 20	4.19	209 50
Ashby, . . .	10,098 90	182 08	10,280 98	1,545 10	-	1,545 10	11,826 08	29 90	-	29 90	185 21	6.09	182 50
Ashfield, . . .	3,226 70	343 27	3,569 97	259 11	-	259 11	3,829 08	213 21	-	213 21	157 55	1.61	80 50

Table showing the Amounts expended for Repair, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1912.			Cost per Mile Maintenance per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	REVENUE APPROPRIATION.			MOTOR VEHICLE FEES FUND.									
	During 1912.		Total.	To 1912.	During 1912.	Total.							
	To 1912.												
Ashtland, . . . . .	\$941 57	\$357 57	\$1,299 14	\$487 26	-	\$487 26	\$1,786 40	\$111 74	-	\$111 74	\$80 94	3.20	\$160 00
Athol, . . . . .	10,258 09	332 75	10,590 84	2,801 43	\$7,027 81	9,829 24	20,420 08	107 34	\$2,267 04	2,374 38	289 76	3.10	155 00
Attleborough, . . . . .	5,029 87	582 88	5,612 75	8,206 91	704 63	8,911 54	14,524 29	171 94	207 86	379 80	179 55	3.39	169 50
Auburn, . . . . .	15,638 66	9,245 89	24,884 55	11,067 25	924 28	11,991 53	36,876 08	1,751 11	175 05	1,926 16	384 91	5.28	264 00
Barnstable, . . . . .	6,272 49	1,490 60	7,763 09	617 44	5,067 11	5,684 55	13,447 64	133 81	454 86	588 67	106 39	11.14	557 00
Barre, . . . . .	9,720 09	690 49	10,410 58	320 02	-	320 02	10,730 60	238 92	-	238 92	304 23	2.89	144 50
Becket, . . . . .	3,819 45	2,274 51	6,093 96	9,564 63	14 00	9,578 63	15,672 59	369 84	2 28	372 12	217 49	6.15	-
Bedford, . . . . .	1,402 80	178 11	1,580 91	3,459 23	307 89	3,767 12	5,348 03	107 95	186 60	294 55	95 47	1.65	82 50
Belchertown, . . . . .	1,120 50	350 46	1,470 96	12 67	-	12 67	1,483 63	149 13	-	149 13	74 59	2.35	117 50
Bellingham, . . . . .	1,002 45	301 44	1,303 89	1,360 31	2,157 95	3,518 26	4,822 15	94 79	678 60	773 39	58 79	3.18	159 00
Berkley, . . . . .	335 81	7 77	343 58	33 00	-	33 00	376 58	10 09	-	10 09	74 37	.77	7 77
Bernardston, . . . . .	217 71	795 63	1,013 34	-	-	-	1,013 34	294 68	-	294 68	281 48	2.70	135 00
Beverly, . . . . .	17,901 04	2,928 64	20,829 68	15,464 31	10,934 85	26,399 16	47,228 84	515 61	1,925 15	2,440 76	363 08	5.68	284 00
Billerica, . . . . .	431 17	214 80	645 97	469 14	-	469 14	1,115 11	370 34	-	370 34	326 25	.58	29 00
Blackstone, . . . . .	2,229 86	526 99	2,756 85	2,038 09	116 82	2,154 91	4,911 76	201 91	44 76	246 67	124 74	2.61	130 50
Bourne, . . . . .	4,315 84	1,105 06	5,420 90	6,491 61	640 32	7,131 93	12,552 83	149 53	86 65	236 18	120 36	7.39	369 50
Boston, . . . . .	1,183 15	1,229 49	2,412 64	87 93	-	87 93	2,500 57	878 21	-	878 21	504 74	1.40	70 00

Boxborough, . . .	1,922 03	1,075 93	2,997 96	44 76	1,248 29	1,203 05	4,291 01	325 05	377 13	702 13	98 87	3.31	165 50
Braintree, . . .	968 81	1,170 21	2,139 02	27 88	2,710 81	2,738 69	4,877 71	1,103 97	2,557 37	3,661 34	189 46	1.06	53 00
Brewster, . . .	7,794 54	1,359 02	9,153 56	92 55	1,316 88	1,409 43	10,562 99	173 78	168 40	342 18	92 26	7.82	391 00
Bridgewater, . . .	3,727 60	480 36	4,207 96	824 75	307 62	1,132 37	5,340 33	133 43	88 65	227 08	173 45	3.47	173 50
Brimfield, . . .	2,732 10	397 99	3,130 09	6,831 90	-	6,831 90	9,961 99	100 25	-	100 25	64 42	3.97	198 50
Brockton, . . .	3,636 01	429 54	4,065 55	4,268 89	2,860 34	7,129 23	11,194 78	134 65	896 66	1,051 31	104 89	3.19	159 50
Brookfield, . . .	7,834 83	945 91	8,780 74	1,159 04	13 49	1,172 53	9,953 27	204 30	2 91	207 21	225 55	4.63	231 50
Buckland, . . .	6,880 76	1,060 48	7,941 24	4,639 69	-	4,639 69	12,580 93	247 78	-	247 78	144 86	4.28	214 00
Burlington, . . .	3,193 65	942 90	4,136 55	2,331 34	-	2,331 34	6,467 89	248 13	-	248 13	143 18	3.80	190 00
Canton, . . .	3,753 06	293 82	4,046 88	2,601 59	62 10	2,663 69	6,710 57	90 97	19 23	110 20	228 25	3.23	161 50
Charlemont, . . .	4,879 84	285 87	5,165 71	-	-	-	5,165 71	371 26	-	371 26	470 89	.77	38 50
Charlton, . . .	2,534 61	1,164 15	3,698 76	48 93	-	48 93	3,747 69	165 13	-	165 13	117 87	7.05	382 50
Chatham, . . .	3,327 02	1,210 23	4,537 25	95 91	1,302 89	1,398 80	5,936 05	168 79	181 71	350 50	89 56	7.17	358 50
Chelmsford, . . .	3,609 36	751 28	4,360 64	1,496 97	4,089 61	5,536 58	9,947 22	123 57	672 63	796 20	116 66	6.08	304 00
Chelsea, . . .	2,270 21	271 16	2,541 37	2,336 53	6,350 28	6,836 81	11,228 18	282 46	294 23	576 69	290 44	.96	48 00
Cheshire, . . .	5,821 02	2,305 48	8,126 50	65 52	-	65 52	8,192 02	550 23	-	550 23	246 93	4.19	209 50
Chester, . . .	4,403 71	2,468 11	6,871 82	191 59	666 60	858 19	7,730 01	372 83	100 69	473 52	184 73	6.62	331 00
Chicopee, . . .	14,785 18	2,163 52	16,948 70	1,002 77	15,149 50	16,152 27	33,100 97	556 17	3,894 47	4,450 64	535 17	3.89	194 50
Chilmark, . . .	958 97	347 75	1,306 72	35 00	-	35 00	1,341 72	56 82	-	56 82	50 59	6.12	306 00
Clarksburg, . . .	1,492 62	975 60	2,468 22	10 46	-	10 46	2,478 68	895 05	-	895 05	430 00	1.09	54 50
Cohasset, . . .	3,281 03	779 97	4,061 00	1,410 86	1,391 17	2,802 03	6,863 03	342 09	610 16	952 25	147 34	2.28	114 00
Colrain, . . .	2,204 60	573 28	2,777 88	74 34	-	74 34	2,852 22	269 15	-	269 15	114 27	2.13	106 50

Table showing the Amounts expended for Repair, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.					Total ex- pended.	EXPENDED PER MILE IN 1912.			Cost per Mile Maintenance per Year. (Miles).	Amount to be assessed on Cities and Towns.		
	REVENUE APPROPRIATION.		MOTOR VEHICLE FEES FUND.										
	To 1912.	During 1912.	Total.	To 1912.	During 1912.		Total.						
Concord, . . .	\$9,298 49	\$1,614 42	\$10,912 91	\$2,625 71	\$4 35	\$2,630 06	\$13,542 97	\$449 70	\$1 21	\$450 91	\$291 63	3.59	\$179 50
Dalton, . . .	6,871 43	569 48	7,440 91	-	-	-	7,440 91	222 45	-	222 45	221 72	2.56	128 00
Dartmouth, . . .	5,425 65	827 27	6,252 92	10,774 73	2,997 66	13,772 39	20,025 31	182 22	660 28	842 50	134 27	4.54	227 00
Dedham, . . .	5 65	18 73	24 38	1 93	-	1 93	26 31	624 33	-	624 33	243 80	.03	1 50
Deerfield, . . .	9,517 72	1,068 76	10,586 48	2,135 75	8,034 96	10,170 71	20,757 19	145 01	287 44	432 45	184 05	7.37	368 50
Dennis, . . .	6,861 99	1,458 38	8,320 37	579 06	2,027 82	2,606 88	10,927 25	194 45	270 38	464 83	87 13	7.50	375 00
Dighton, . . .	1,988 56	575 66	2,564 22	3,084 32	780 02	3,864 34	6,428 56	110 70	150 00	260 70	112 81	5.20	260 00
Douglas, . . .	1,405 47	153 61	1,559 08	5,557 08	438 58	5,996 26	7,555 34	72 12	205 91	278 03	89 29	2.13	106 50
Dover, . . .	1,320 43	372 11	1,692 54	1 76	-	1 76	1,694 30	170 69	-	170 69	146 16	2.18	109 00
Dracut, . . .	674 42	142 81	817 23	55	-	55	817 78	78 04	-	78 04	79 65	1.83	91 50
Dudley, . . .	2,693 10	272 08	2,965 18	-	6,446 55	6,446 55	9,411 73	118 81	2,815 09	2,933 90	185 90	2.29	114 50
Duxbury, . . .	7,367 43	671 48	8,038 91	635 89	493 90	1,129 79	9,168 70	130 13	95 72	225 85	159 98	5.16	258 00
East Longmeadow, . .	670 00	329 92	999 92	-	-	-	999 92	183 29	-	183 29	104 27	1.80	90 00
Eastham, . . .	3,487 07	282 86	3,769 93	12 18	1,658 46	1,670 64	5,440 57	43 79	256 73	300 52	143 34	6.46	282 86
Easthampton, . . .	3,302 90	521 29	3,824 19	328 75	-	328 75	4,152 94	215 41	-	215 41	111 27	2.42	121 00
Easton, . . .	706 39	88 92	795 31	5,879 00	647 53	6,526 53	7,321 84	111 15	809 40	920 55	83 10	.80	40 00
Edgartown, . . .	3,752 11	107 12	3,859 23	479 76	201 10	680 86	4,540 09	44 26	83 10	127 36	139 78	2.42	107 12



Erving, . . .	3,612 19	1,218 14	4,830 33	180 59	1,125 64	1,306 23	6,136 56	199 04	183 93	382 97	142 40	6.12	305 00
Essex, . . .	3,358 79	63 06	3,421 85	623 02	-	623 02	4,044 87	180 17	-	180 17	1,056 13	.35	17 50
Fairhaven, . .	1,409 32	187 87	1,597 19	2,542 07	615 29	3,157 36	4,764 55	129 57	424 34	553 91	64 14	1.45	72 50
Falmouth, . .	10,272 27	2,915 49	13,187 76	4,137 71	11,905 00	16,042 71	29,230 47	187 37	765 10	952 47	124 03	15.56	778 00
Fitchburg, . .	7,291 83	842 11	8,073 94	4,826 99	10,299 15	15,126 14	23,200 08	204 40	2,499 79	2,704 19	162 13	4.12	206 00
Foxborough, . .	1,384 64	891 26	2,275 90	76 17	-	76 17	2,352 07	253 92	-	253 92	81 78	3.51	175 50
Frammingham, .	1,739 91	522 50	2,262 41	4,123 16	-	4,123 16	6,385 57	162 77	-	162 77	124 31	3.21	160 50
Franklin, . . .	771 36	405 57	1,176 93	40	1,134 92	1,135 32	2,312 25	107 86	301 84	409 70	118 64	3.76	188 00
Freetown, . . .	2,078 61	654 48	2,733 09	173 57	2,880 09	3,053 66	5,786 75	169 12	744 21	913 33	84 51	3.87	163 50
Gardner, . . .	5,357 34	1,262 66	6,620 00	885 14	6,387 21	7,272 85	13,892 35	375 79	1,900 96	2,276 75	146 82	3.36	168 00
Gloucester, . .	18,915 19	1,975 60	20,890 79	6,669 51	2,876 02	9,545 53	30,436 32	496 38	722 62	1,219 00	450 72	3.98	199 00
Goshen, . . .	6,296 55	87 95	6,384 50	7 19	-	7 19	6,391 09	35 75	-	35 75	185 76	2.46	87 95
Grafton, . . .	4,749 74	422 63	5,172 37	5,849 14	-	5,849 14	11,021 51	114 53	-	114 53	210 69	3.69	184 50
Granby, . . .	5,883 38	731 62	6,615 00	112 37	-	112 37	6,727 37	194 58	-	194 58	271 00	3.76	188 00
Great Barrington, .	12,609 21	726 46	13,335 67	1,651 34	1 65	1,652 99	14,988 66	213 04	48	213 52	266 93	3.41	170 50
Greenfield, . .	2,069 77	563 99	2,663 76	58 43	3,819 49	3,877 92	6,541 68	110 82	712 59	823 41	82 24	5.36	268 00
Groton, . . .	862 66	294 50	1,157 16	145 75	-	145 75	1,302 91	208 87	-	208 87	83 25	1.41	70 50
Groveland, . .	1,973 40	250 52	2,223 92	1,794 67	1,106 91	2,901 58	5,125 50	145 65	643 55	789 20	134 86	1.72	86 00
Hadley, . . .	11,450 47	1,308 25	12,758 72	6,828 74	3,967 49	10,796 23	23,554 95	278 92	845 94	1,124 86	218 28	4.69	284 50
Hamilton, . . .	3,823 18	1,082 31	4,905 49	994 09	382 94	1,377 03	6,282 52	406 88	143 96	550 84	231 61	2.66	183 00
Hancock, . . .	20,033 81	2,501 45	22,535 26	6,412 79	1,515 02	7,927 81	30,463 07	774 44	469 04	1,243 48	483 07	3.23	-
Hanover, . . .	1,069 15	216 79	1,285 94	23 00	-	23 00	1,308 94	117 18	-	117 18	141 78	1.85	92 50

Table showing the Amounts expended for Repair, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1912.			Cost per Mile per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	REVENUE APPROPRIATION.			MOTOR VEHICLE FEES FUND.									
	To 1912.		Total.	To 1912.		Total.		From Revenue Appropriation.	From Motor Vehicle Fees Fund.	Total.			
	To 1912.	During 1912.		To 1912.	During 1912.								
Hardwick, .	\$1,310 59	\$117 19	\$1,427 78	-	-	\$1,427 78	\$142 91	-	\$142 91	\$135 98	.82	\$41 00	
Harvard, .	791 26	386 50	1,177 76	-	-	1,177 76	167 32	-	167 32	76 33	2.31	115 50	
Harwich, .	5,385 82	1,363 09	6,748 91	\$356 93	\$1,448 60	\$1,805 53	210 35	\$223 55	433 90	111 79	6.48	324 00	
Hatfield, .	2,416 28	432 09	2,848 37	822 90	115 00	937 90	122 06	32 49	154 55	254 77	3.54	177 00	
Haverhill, .	10,085 72	946 02	11,031 74	2,734 69	-	2,734 69	13,766 43	165 39	-	255 01	5.72	286 00	
Hingham, .	5,987 76	281 57	6,269 33	7,167 96	2,158 61	9,326 57	15,595 90	105 85	811 50	145 46	2.66	133 00	
Hinsdale, .	861 02	265 12	1,126 14	-	-	-	1,126 14	259 92	-	259 92	1.02	51 00	
Holbrook, .	1,292 33	74 64	1,366 97	29 00	311 30	340 30	1,707 27	42 65	177 88	56 05	1.75	74 64	
Holden, .	11,076 32	786 01	11,862 33	1,856 25	4,594 02	6,450 27	18,312 60	166 18	971 25	137 75	4.74	236 50	
Holliston, .	672 58	888 35	1,560 93	1,581 07	-	1,581 07	3,142 00	219 35	-	140 50	4.05	202 50	
Holyoke, .	1,329 08	1,578 66	2,907 74	3,349 55	1,817 04	5,166 59	8,074 33	379 49	436 79	201 94	4.16	208 00	
Hudson, .	630 55	236 07	866 62	42 25	-	42 25	908 87	207 08	-	132 71	1.14	57 00	
Huntington, .	7,719 56	717 67	8,437 23	2,046 92	1,570 91	3,617 83	12,055 06	317 55	695 09	351 84	2.26	113 00	
Ipswich, .	1,137 27	1,051 85	2,189 12	1,115 86	336 03	1,451 89	3,641 01	23 80	76 02	158 29	4.42	221 00	
Kingston, .	877 77	209 62	1,087 39	631 29	210 33	841 62	1,929 01	205 50	206 20	411 70	1.02	51 00	
Lakeville, .	2,072 10	583 40	2,655 50	42 34	1,570 55	1,612 89	4,268 39	69 78	187 86	66 97	8.36	418 00	
Lancaster, .	990 91	84 59	1,081 50	43 95	662 37	706 32	1,787 82	67 67	529 89	35 09	1.25	62 50	

Lanesborough,	83 72	780 36	864 08	-	-	-	864 08	378 81	-	378 81	443 12	2.06	103 00
Lawrence,	3,100 99	506 60	3,607 59	151 81	10 50	162 31	3,769 90	1,876 30	38 86	1,915 16	871 40	.27	13 50
Lee, . . .	17,893 49	2,757 91	20,651 40	4,476 95	511 16	4,988 11	25,639 51	455 85	84 49	540 34	352 59	6.05	302 50
Leicester, .	20,504 66	1,083 50	27,588 16	14,874 22	4,595 21	19,469 43	47,057 59	222 48	943 57	1,166 05	383 92	4.87	243 50
Lenox, . . .	29,309 47	5,288 80	34,598 27	7,852 58	23,298 02	31,150 60	65,748 87	690 44	3,041 51	3,731 65	588 61	7.66	383 00
Leominster,	1,620 35	619 81	2,240 16	42 10	488 83	530 93	2,771 09	284 32	224 23	508 55	100 23	2.18	109 00
Lexington,	12,382 33	1,182 14	13,564 47	10,932 43	291 78	11,224 21	24,788 68	275 56	68 01	343 57	217 14	4.29	214 50
Lincoln, . .	7,101 48	864 84	7,966 32	3,261 72	18 50	3,280 22	11,246 54	419 83	8 98	428 81	243 47	2.06	103 00
Littleton,	2,777 60	245 41	3,023 01	619 03	11,327 94	11,946 97	14,969 98	82 63	3,814 11	3,896 74	126 80	2.97	148 50
Lowell, . . .	15,508 95	690 71	16,199 66	1,100 56	1,041 21	2,141 77	18,341 43	260 65	-	260 65	535 36	2.65	132 50
Lunenburg,	3,843 35	1,488 48	5,331 83	4,119 06	1,446 63	5,565 69	10,897 52	361 28	351 12	712 40	152 86	4.12	206 00
Lynn, . . .	8,085 94	262 65	8,298 59	5,698 64	-	5,698 64	13,997 23	291 83	-	291 83	1,282 63	.90	45 00
Mansfield,	632 71	285 53	918 24	16 21	-	16 21	934 45	235 98	-	235 98	89 76	1.21	60 50
Marion, . . .	11,014 58	467 57	11,482 15	3,422 17	184 23	3,606 45	15,088 60	83 94	33 08	117 02	21 33	5.57	278 50
Marlborough,	12,543 11	934 91	13,478 02	4,667 26	2,139 76	6,807 02	20,285 04	147 69	338 03	485 72	221 57	6.33	316 50
Marshfield,	6,763 30	1,189 48	7,982 78	1,222 42	1,763 57	2,985 99	10,968 77	143 66	212 99	356 65	134 39	8.28	414 00
Mashpee, . .	-	14 34	14 34	-	-	-	14 34	-	-	-	8 54	1.82	14 34
Mattapoisett,	4,493 52	348 84	4,842 36	1,222 55	6,053 49	7,276 04	13,118 40	108 67	1,885 82	1,994 49	115 38	3.21	160 50
Medford,	634 25	678 53	1,312 78	1,333 26	1,066 60	2,399 86	3,712 64	788 99	1,240 22	2,029 21	345 47	.86	43 00
Melrose, . .	324 70	104 93	429 63	4 69	-	4 69	434 32	262 33	-	262 33	176 80	.40	20 00
Merrimac,	2,564 45	212 79	2,777 24	960 48	-	960 48	3,737 72	95 42	-	95 42	106 12	2.23	111 50
Methuen, . .	5,133 97	1,187 03	6,321 00	3,301 06	13 48	3,404 54	9,725 54	321 69	3 65	325 34	165 99	3.69	184 50

Table showing the Amounts expended for Repair, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1912.			Cost per Mile maintained per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	REVENUE APPROPRIATION.		MOTOR VEHICLE FEES FUND.			From Revenue Appropriation.		From Motor Vehicle Fees Fund.	Total.				
	To 1912.	During 1912.	Total.	To 1912.	During 1912.					Total.			
Middleborough, .	\$6,590 49	\$403 75	\$6,994 24	\$9,696 19	\$1,497 47	\$11,193 66	\$32 43	\$120 28	\$152 71	\$59 36	12.45	\$403 75	
Milford, . . .	988 27	506 29	1,494 56	4,935 17	2 00	4,937 17	142 62	56	143 18	93 35	3.55	177 50	
Millbury, . .	2,297 00	602 65	2,899 65	4,201 37	156 36	4,357 73	202 23	52 47	254 70	110 84	2.98	149 00	
Milton, . . .	3,631 43	2,242 98	5,874 41	98 07	274 17	372 24	2,578 11	315 13	2,893 24	568 12	.87	43 50	
Monson, . . .	2,259 69	471 15	2,710 84	35 88	—	35 88	292 64	—	292 64	134 67	1.61	80 50	
Montague, . .	4,537 49	591 56	5,129 05	4,729 20	1,255 80	5,985 00	103 24	219 16	322 40	126 08	5.73	286 50	
Nantucket, . .	15,648 37	155 66	15,804 03	1,800 08	676 91	2,476 99	24 02	104 46	128 48	170 65	6.48	155 66	
Natick, . . .	2,763 01	796 34	3,559 35	7,807 33	—	7,807 33	248 86	—	248 86	120 45	3.20	160 00	
Needham, . .	968 95	278 48	1,247 43	457 32	357 25	815 07	137 33	175 98	313 31	74 92	2.03	101 50	
New Braintree, .	300 51	30 78	331 29	—	—	—	76 95	—	76 95	75 64	.40	20 00	
Newbury, . . .	8,570 94	353 57	8,924 51	4,826 31	2,384 00	7,210 31	83 59	563 59	647 18	217 62	4.23	211 50	
Newburyport, .	7,605 63	216 32	7,821 95	2,086 30	748 16	2,834 46	123 61	427 52	551 13	313 88	1.75	87 50	
Newton, . . .	212 32	510 95	723 27	1,511 75	59 00	1,570 75	496 07	57 28	553 35	63 33	1.03	51 50	
Norfolk, . . .	2,708 64	128 65	2,837 29	3,478 73	54 71	3,533 44	88 72	37 73	126 45	89 99	1.45	72 50	
North Adams, .	21,591 62	1,497 92	23,089 54	8,478 00	178 51	8,656 51	373 55	44 52	418 07	446 25	4.48	224 00	
Northampton, .	5,582 99	542 40	6,125 39	1,156 96	371 75	1,528 71	—	—	—	178 27	2.03	101 50	
North Andover, .	2,632 82	1,513 09	4,145 91	448 01	219 35	667 36	269 71	39 10	308 81	163 35	5.61	280 50	

North Attleborough,	4,941 65	744 20	5,685 85	14,402 50	1,399 70	15,802 20	21,488 05	206 72	388 80	595 52	100 01	3.60	180 00
Northborough,	4,551 70	1,012 72	5,564 42	2,531 27	635 38	3,166 65	8,731 07	227 58	142 78	370 36	117 39	4.45	222 50
North Brookfield,	824 14	154 20	978 34	34 25	-	34 25	1,012 59	68 53	-	68 53	89 11	2.25	112 50
Northfield,	1,355 71	267 78	1,623 49	-	-	-	1,623 49	230 84	-	230 84	138 76	1.16	58 00
North Reading,	2,769 08	236 40	3,005 48	4,170 90	1,438 34	5,659 24	8,664 72	93 07	585 96	679 03	109 01	2.54	127 00
Norton,	2,203 65	265 11	2,468 76	6 20	624 15	630 35	3,099 11	56 53	133 08	189 61	86 76	4.70	234 50
Norwood,	9,138 30	107 97	9,246 27	2,689 68	406 45	3,096 13	12,342 40	52 67	198 27	250 94	298 94	2.05	102 50
Oak Bluffs,	7,857 41	96 50	7,953 91	494 35	247 13	741 48	8,695 39	40 72	104 27	144 99	202 03	2.37	96 50
Orange,	13,204 60	890 93	14,095 53	697 87	8,827 48	9,525 35	23,620 88	185 61	1,839 05	2,024 66	238 46	4.79	240 00
Orleans,	2,605 59	703 78	3,309 37	284 44	918 86	1,203 30	4,512 67	149 74	195 50	345 24	83 61	4.70	235 00
Oxford,	1,462 30	453 12	1,915 42	90 57	20 00	110 57	2,025 99	206 90	9 13	216 03	206 18	2.19	109 50
Palmer,	12,133 44	3,801 76	15,935 20	12,624 10	13 15	12,637 25	28,572 45	383 24	1 33	384 57	252 74	9.92	496 00
Paxton,	17,095 86	956 33	18,052 19	10,108 66	-	10,108 66	28,160 85	265 65	-	265 65	320 87	3.60	180 00
Pembroke,	546 39	55 09	601 48	18 00	-	18 00	619 48	157 40	-	157 40	254 86	.35	17 50
Pepperell,	155 22	257 73	412 95	-	-	-	412 95	129 51	-	129 51	128 64	1.99	99 50
Phillipston,	5,990 30	411 16	6,401 46	2,460 70	150 00	2,610 70	9,012 16	147 90	53 96	201 86	275 81	2.78	139 00
Pittsfield,	30,563 27	5,392 41	35,955 68	3,332 07	2,034 91	5,366 98	41,322 66	770 34	290 70	1,061 04	545 53	7.00	350 00
Plainville,	1,877 78	308 37	2,186 15	6,356 40	406 59	6,762 99	8,949 14	134 07	176 78	310 85	145 65	2.30	115 00
Plymouth,	8,145 80	780 60	8,926 40	3,604 06	1,535 49	5,189 55	14,115 95	78 85	160 15	239 00	115 18	9.90	495 00
Princeton,	1,380 38	29 59	1,409 97	566 98	-	566 98	1,976 95	13 27	-	13 27	58 80	2.23	29 59
Provincetown,	1,652 88	231 90	1,884 78	1,092 90	2,684 59	3,777 49	5,662 27	210 82	2,440 51	2,651 33	178 65	1.10	55 00
Quincy,	4,793 03	988 92	5,781 95	3,516 53	4,499 39	8,015 92	13,797 87	370 38	1,685 16	2,055 54	265 71	2.67	133 50

Table showing the Amounts expended for Repair, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1912.			Cost per Mile per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.	
	REVENUE APPROPRIATION.			MOTOR VEHICLE FEES FUND.				From Revenue Appropriation.	From Motor Vehicle Fees Fund.	Total.				
	To 1912.		During 1912.	To 1912.		During 1912.								Total.
	To 1912.	During 1912.		To 1912.	During 1912.									
Randolph, . . .	\$1,206 71	\$105 40	\$1,312 11	\$3,785 13	\$528 32	\$4,313 45	\$5,625 56	\$55 47	\$278 06	\$333 53	\$91 25	1.90	\$95 00	
Raynham, . . .	614 89	161 86	776 75	36 65	-	36 65	813 40	66 34	-	66 34	52 84	2.44	122 00	
Reading, . . .	7,713 81	504 19	8,218 00	3,007 35	2,300 38	5,307 73	13,525 73	134 81	615 07	749 88	225 71	3.74	187 00	
Rehoboth, . . .	3,407 15	708 74	4,115 89	5,828 81	337 57	6,166 38	10,282 27	117 54	55 98	173 52	76 79	6.03	301 50	
Revere, . . .	5,942 82	709 82	6,652 64	10,276 09	-	10,276 09	16,928 73	567 86	-	567 86	807 36	1.25	62 50	
Richmond, . . .	3,783 88	490 38	4,274 26	468 75	2,363 90	2,832 65	7,106 91	121 99	588 03	710 02	108 95	4.02	201 00	
Rochester, . . .	2,835 22	384 92	3,220 14	315 88	1,781 95	2,097 83	5,317 97	62 39	288 81	351 20	65 60	6.17	308 50	
Rockland, . . .	1,301 72	278 86	1,580 58	31 62	1,410 79	1,442 41	3,022 99	118 66	600 33	718 99	86 75	2.35	117 50	
Rockport, . . .	531 62	320 93	852 55	1,610 32	380 15	1,990 47	2,843 02	200 58	237 59	438 17	107 92	1.60	80 00	
Rowley, . . .	2,725 58	524 34	3,249 92	350 22	2,146 70	2,496 92	5,746 84	144 05	589 75	733 80	257 11	3.64	182 00	
Russell, . . .	21,720 52	1,768 15	23,488 67	13,423 19	139 16	13,562 35	37,051 02	265 49	20 89	286 38	235 26	6.66	333 00	
Rutland, . . .	763 76	77 58	841 34	-	-	-	841 34	66 88	-	66 88	103 61	1.16	58 00	
Salem, . . .	768 19	589 50	1,357 69	3,681 46	-	3,681 46	5,089 15	421 07	-	421 07	255 20	1.40	70 00	
Salisbury, . . .	1,772 36	428 41	2,200 77	1,174 45	697 43	1,871 88	4,072 65	76 04	124 76	201 40	138 38	5.59	279 50	
Sandwich, . . .	5,714 39	512 22	6,226 61	16 75	4,906 74	4,923 49	11,150 10	99 27	950 92	1,050 19	156 80	5.16	258 00	
Saugus, . . .	6,330 43	363 13	6,693 56	22,802 36	-	22,802 36	29,495 92	202 86	-	202 86	316 63	1.79	89 50	
Scituate, . . .	6,883 60	1,430 84	8,314 44	653 94	1,083 83	1,737 77	10,052 21	266 45	201 83	468 28	191 22	5.37	268 50	

Seekonk, . . .	3,212 50	828 46	4,040 96	2,307 41	973 15	3,280 56	7,321 52	157 20	184 66	341 86	141 99	5.27	263 50
Sharon, . . .	192 97	40 28	233 25	24 00	-	24 00	257 25	62 94	-	62 94	89 37	.64	32 00
Shelburne, . . .	6,569 71	615 78	7,185 49	419 02	173 44	592 46	7,777 95	285 08	80 30	365 38	204 54	2.16	108 00
Shrewsbury, . . .	17,311 53	1,260 71	18,562 24	20,543 58	627 43	21,171 01	39,793 25	257 35	129 10	386 45	289 45	4.86	243 00
Somerset, . . .	8,118 92	882 40	9,001 32	16,151 23	2,943 84	19,095 07	28,096 39	110 30	367 98	478 28	108 50	8.00	400 00
Somerville, . . .	1,195 81	808 09	2,063 90	1,999 24	842 19	2,841 43	4,905 33	743 35	726 02	1,474 37	449 65	1.16	58 00
Southampton, . . .	489 04	99 57	588 61	-	-	-	588 61	140 24	-	140 24	122 63	.71	35 50
Southborough, . . .	2,172 43	455 06	2,627 49	2,381 38	-	2,381 38	5,008 87	123 32	-	123 32	140 36	3.69	184 50
Southbridge, . . .	1,416 13	775 79	2,191 92	43 39	481 70	525 09	2,717 01	570 43	354 19	924 62	185 76	1.36	68 00
South Hadley, . . .	14,830 48	2,125 27	16,955 75	12,521 68	884 27	13,355 95	30,311 70	301 03	118 17	419 20	282 97	7.06	353 00
Spencer, . . .	7,894 38	507 16	8,371 54	3,187 14	611 60	3,798 74	12,170 28	165 74	199 87	365 61	336 21	3.06	153 00
Sterling, . . .	3,047 27	719 79	3,767 06	56 30	1,021 83	1,078 13	4,845 19	195 06	276 92	471 98	125 61	3.69	184 50
Stockbridge, . . .	4,526 43	1,965 16	6,491 59	817 67	-	817 67	7,309 26	595 50	-	595 50	425 96	3.30	165 00
Stoneham, . . .	6,716 69	305 01	7,021 70	3,690 15	506 80	4,196 95	11,218 65	193 04	320 76	513 80	351 79	1.68	79 00
Stoughton, . . .	4,139 85	312 62	4,452 47	1,308 03	121 03	1,429 06	5,881 53	94 73	36 68	131 41	169 04	3.30	165 00
Sturbridge, . . .	1,370 26	611 75	1,982 01	99 82	4,453 52	4,553 34	6,535 35	259 22	1,887 08	2,146 30	114 17	2.36	118 00
Sudbury, . . .	16,951 90	992 84	17,914 74	6,180 49	2,105 72	8,286 21	26,200 95	188 42	412 08	600 50	310 64	5.11	255 50
Sunderland, . . .	874 31	95 99	970 30	-	449 92	449 92	1,420 22	61 93	290 27	352 20	79 79	1.55	78 00
Sutton, . . .	3,145 90	269 01	3,414 91	2,474 90	1,173 29	3,648 19	7,063 10	117 99	514 60	632 59	141 11	2.28	114 00
Swampscott, . . .	4,756 66	732 22	5,488 88	3,492 55	-	3,492 55	8,931 43	491 42	-	491 42	277 64	1.49	74 50
Swansea, . . .	1,755 98	678 92	2,434 90	51 82	181 01	232 83	2,667 73	112 03	29 87	141 90	85 08	6.06	303 00
Taunton, . . .	5,298 76	489 00	5,787 76	163 16	4,182 86	4,346 02	10,133 78	96 64	826 65	923 29	112 84	5.06	253 00

Table showing the Amounts expended for Repair, Maintenance, etc. — Continued.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1912.				Cost per Mile Maintenance per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	REVENUE APPROPRIATION.			MOTOR VEHICLE FEES FUND.										
	To 1912.	During 1912.	Total.	To 1912.	During 1912.	Total.								
Templeton, . .	\$3,100 10	\$952 18	\$4,052 28	\$368 54	\$9,984 17	\$10,352 71	\$14,404 99	\$167 34	\$1,754 68	\$1,922 02	\$108 79	5.69	\$284 50	
Tewksbury, . .	2,383 24	896 04	3,279 28	4,204 84	-	4,204 84	7,484 12	141 11	-	141 11	58 15	6.00	300 00	
Tisbury, . . .	2,290 54	349 75	2,640 29	33 23	-	33 23	2,673 52	181 22	-	181 22	78 93	1.93	96 50	
Townsend, . .	4,002 79	968 88	4,971 67	26 59	298 62	325 21	5,206 88	160 68	48 03	208 71	82 52	6.03	302 00	
Truro, . . . .	4,654 41	619 83	5,274 24	159 71	546 30	706 01	5,980 25	196 15	172 88	369 03	141 97	3.16	158 00	
Tyngsborough, .	7,186 65	1,138 25	8,324 90	1,378 71	-	1,378 71	9,703 61	168 13	-	168 13	155 84	6.77	338 50	
Uxbridge, . . .	1,741 24	1,322 21	3,063 45	4,911 77	17 50	4,929 27	7,992 72	451 26	5 97	457 23	105 27	2.93	147 00	
Wales, . . . .	564 18	21 48	585 66	-	-	-	585 66	20 65	-	20 65	54 48	1.04	21 48	
Walpole, . . .	12,582 47	309 85	12,892 32	9,731 81	257 13	9,988 94	22,881 26	67 95	56 39	124 34	192 80	4.56	227 00	
Ware, . . . . .	3,444 18	605 01	4,049 19	-	-	-	4,049 19	144 74	-	144 74	121 96	4.18	209 00	
Wareham, . . .	10,126 98	723 34	10,850 32	4,678 42	1,490 05	6,168 47	17,018 79	86 94	179 09	266 03	-	8.32	416 00	
Warren, . . . .	10,471 93	1,404 86	11,876 79	5,653 27	-	5,653 27	17,530 06	342 65	-	342 65	247 12	4.10	205 00	
Watertown, . .	4,022 18	269 20	4,291 38	5,554 05	519 09	6,073 14	10,364 52	316 70	610 69	927 39	312 32	.85	42 50	
Wayland, . . .	11,738 83	670 72	12,409 55	5,104 58	464 14	5,568 72	17,978 27	259 97	179 90	439 87	394 08	2.58	129 00	
Webster, . . . .	418 72	78 14	496 86	50 43	-	50 43	547 29	52 80	-	52 80	161 84	1.48	74 00	
Wellesley, . . .	2,919 03	478 17	3,397 20	2,727 22	-	2,727 22	6,124 42	405 23	-	405 23	256 20	1.18	59 00	
Wellfleet, . . .	4,310 08	452 34	4,762 42	5 20	916 31	921 51	5,683 93	97 28	197 06	294 34	127 34	4.65	232 50	



Wenham, . . .	6,292 73	972 12	7,264 85	3,036 34	-	3,036 34	10,301 19	552 34	-	552 34	352 66	1.76	88 00
Westborough, . .	1,574 91	289 37	1,864 28	-	-	-	1,864 28	96 78	-	96 78	70 32	2.99	149 50
West Boylston, .	4,072 46	348 22	4,420 68	368 32	-	368 32	4,789 00	224 66	-	224 66	202 23	1.55	77 50
West Bridgewater, .	12,875 72	466 80	13,342 52	1,382 83	1,565 98	2,948 81	16,291 33	147 72	495 56	643 28	408 03	3.16	158 00
West Brookfield, .	3,894 92	626 70	4,451 62	717 88	-	717 88	5,169 50	234 72	-	234 72	16 52	2.67	134 00
Westfield, . . .	20,129 85	2,257 92	22,387 77	3,630 95	2,440 21	6,071 16	28,458 93	388 63	420 00	808 63	280 65	5.81	290 50
Westford, . . .	3,305 84	527 86	3,833 70	-	-	-	3,833 70	162 42	-	162 42	120 94	3.25	162 50
Westminster, . .	9,615 84	2,069 30	11,685 14	10,424 15	1,259 59	11,683 74	23,368 88	394 15	239 92	634 07	183 01	5.25	262 50
West Newbury, .	12,927 47	753 00	13,680 47	3,392 42	1,972 82	5,365 24	19,045 71	147 94	387 59	535 53	278 91	5.09	254 50
Weston, . . .	9,928 28	10,586 91	20,515 19	5,118 30	2,266 81	7,385 11	27,900 30	3,360 91	719 62	4,080 53	500 98	3.15	157 50
Westport, . . .	11,063 59	805 83	11,869 42	8,188 50	3,123 71	11,312 21	23,181 63	189 61	734 99	924 60	177 39	4.25	212 50
West Springfield, .	6,711 83	515 19	7,227 02	1,119 61	6,669 95	7,789 56	15,016 58	266 94	3,455 91	3,722 85	309 51	1.93	95 50
West Tisbury, . .	1,779 96	17 06	1,797 02	-	-	-	1,797 02	3 19	-	3 19	27 69	5.35	17 06
Westwood, . . .	1,965 08	65 26	2,030 34	1,327 80	437 17	1,764 97	3,795 31	62 15	416 35	478 50	156 78	1.05	52 50
Weymouth, . . .	12,820 03	5,316 10	18,136 13	688 73	2,898 40	3,587 13	21,723 26	767 11	418 38	1,185 49	306 35	6.93	347 00
Whately, . . .	11,905 19	707 10	12,612 29	2,331 29	442 36	2,773 65	15,385 94	181 77	113 72	295 49	351 42	3.89	194 50
Whitman, . . .	3,294 58	178 68	3,473 26	4,016 02	169 02	4,185 04	7,658 30	105 11	99 42	204 53	122 86	1.70	85 00
Wilbraham, . . .	12,432 90	1,189 96	13,622 86	11,885 89	-	11,885 89	25,508 75	246 88	-	246 88	238 91	4.82	241 00
Williamsburg, . .	4,137 36	781 52	4,918 88	6 25	2,663 13	2,669 38	7,588 26	294 91	1,004 95	1,299 86	150 06	2.65	132 50
Williamstown, . .	9,869 70	415 07	10,284 77	5,011 96	208 40	5,220 36	15,505 13	199 55	100 19	299 74	344 32	1.61	80 50

Table showing the Amounts expended for Repair, Maintenance, etc. — Concluded.

TOWN OR CITY.	AMOUNTS EXPENDED.						Total expended.	EXPENDED PER MILE IN 1912.			Cost per Mile per Year.	Length under Maintenance (Miles).	Amount to be assessed on Cities and Towns.
	REVENUE APPROPRIATION.			MOTOR VEHICLE FEES FUND.									
	To 1912.	During 1912.	Total.	To 1912.	During 1912.	Total.		From Revenue Appropriation.	From Motor Vehicle Fees Fund.	Total.			
Wilmington, . . .	\$297 38	\$439 49	\$736 87	\$832 88	-	\$832 88	\$1,569 75	\$119 75	-	\$119 75	\$82 15	3.07	\$183 50
Winchester, . . .	4,999 47	897 28	5,896 75	2,253 45	-	2,253 45	8,150 20	460 14	-	460 14	239 90	1.95	98 00
Winchendon, . . .	296 24	613 25	909 49	197 60	-	197 60	1,107 09	360 73	-	360 73	121 75	1.70	85 00
Windsor, . . .	852 72	319 25	1,171 97	-	-	-	1,171 97	171 64	-	171 64	81 44	1.86	93 00
Woburn, . . .	3,469 38	651 26	4,120 64	1,970 19	-	1,970 19	6,090 83	249 52	-	249 52	187 47	2.61	130 50
Worcester, . . .	19,015 61	1,609 35	20,624 96	5,080 48	-	5,080 48	25,705 44	395 42	-	395 42	423 77	4.07	203 50
Wrentham, . . .	6,840 32	366 58	7,206 90	3,377 23	\$251 76	3,628 99	10,835 89	89 63	\$61 55	151 18	108 08	4.09	204 50
Yarmouth (north), .	4,985 46	331 08	5,316 54	320 05	2,325 13	4,157 35	18,060 25	{ 89 24	626 72	715 96	88 27	3.71	440 00
Yarmouth (south), .	7,820 31	766 05	8,586 36	1,512 17									

## APPENDIX J.

STATEMENT SHOWING THE NUMBER OF PETITIONS RECEIVED AND THE LENGTH PETITIONED FOR, THE LAYOUTS MADE AND THEIR LENGTH AND DISTRIBUTION IN THE VARIOUS COUNTIES OF THE COMMONWEALTH.

COUNTIES.	PETITIONS RECEIVED.				PETITIONS SITUATED IN —			LAYOUTS MADE IN —			Number of Layouts.
	County.	City.	Town.	Totals.	City.	Town.	Totals.	City.	Town.	Totals.	
Barnstable, . . . .	4	-	46	50	-	15	15	-	15	15	107
Berkshire, . . . .	15	12	54	81	2	27	29	2	16	18	97
Bristol, . . . . .	3	7	47	57	2	17	19	1	17	18	103
Dukes, . . . . .	2	-	5	7	-	5	5	-	5	5	25
Essex, . . . . .	5	23	59	87	7	25	32	7	18	25	128
Franklin, . . . . .	2	-	61	63	-	18	18	-	15	15	93
Hampden, . . . . .	4	6	33	43	3	17	20	2	11	13	84
Hampshire, . . . .	1	6	50	57	1	17	18	1	12	13	81
Middlesex, . . . .	14	25	97	136	9	42	51	7	33	40	178
Nantucket, . . . .	-	-	1	1	-	1	1	-	1	1	14
Norfolk, . . . . .	2	5	55	62	1	26	27	1	22	23	91
Plymouth, . . . .	-	7	65	72	1	25	26	1	19	20	126
Suffolk, . . . . .	-	3	6	9	2	2	4	2	1	3	7
Worcester, . . . .	-	9	164	173	2	56	58	2	44	46	251
Totals, . . . . .	52	103	743	898	30	293	323	26	229	255	1,385

NUMBER OF PETITIONS RECEIVED, ETC. — *Concluded.*

COUNTIES.	LENGTHS PETITIONED FOR.		LENGTHS LAID OUT.					
			1894-1911.		1912.		TOTALS.	
	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.
Barnstable, . . . .	715,887	135.59	514,127	97.37	15,191	2.88	529,318	100.25
Berkshire, . . . .	802,969	152.08	323,956	61.36	19,938	3.78	343,894	65.14
Bristol, . . . . .	827,039	156.64	360,847	68.35	14,703	2.78	375,550	71.13
Dukes, . . . . .	121,043	22.93	96,059	18.19	-	-	96,059	18.19
Essex, . . . . .	1,163,390	220.34	375,619	71.14	26,162	4.95	401,781	76.09
Franklin, . . . . .	700,817	132.73	261,822	49.59	18,128	3.43	279,950	53.02
Hampden, . . . . .	714,204	135.34	297,696	56.38	3,875	.73	301,571	57.11
Hampshire, . . . .	525,574	99.54	200,354	37.94	18,897	3.58	219,251	41.52
Middlesex, . . . .	1,662,207	314.81	632,611	119.82	49,380	9.36	681,991	129.18
Nantucket, . . . .	34,185	6.47	34,211	6.48	-	-	34,211	6.48
Norfolk, . . . . .	735,391	139.28	295,824	56.02	7,620	1.44	303,444	57.46
Plymouth, . . . .	1,064,989	201.70	504,691	95.58	6,577	1.25	511,268	96.83
Suffolk, . . . . .	69,815	13.23	19,016	3.60	-	-	19,016	3.60
Worcester, . . . .	2,001,381	379.03	727,407	137.77	34,518	6.54	761,925	144.31
Totals, . . . . .	11,138,891	2,109.71	4,644,240	879.59	214,989	40.72	4,859,229	920.31

## APPENDIX K.

TABLE SHOWING THE WORK DONE UNDER THE "SMALL TOWN" ACT SINCE ITS PASSAGE IN 1900.

[Section 17, Chapter 47, Revised Laws, and Chapter 279, Acts of 1908.]

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	
<i>Barnstable County.</i>							
Eastham, . . . . .	\$2,260 40	-	\$2,260 40	8,750	-	8,750	1,150 feet graded only; 7,600 feet surfaced with oil, sand and clay.
Harwich, . . . . .	-	\$1,000 00 <sup>1</sup>	1,000 00	-	- <sup>2</sup>	-	
Mashpee, . . . . .	1,200 00	-	1,200 00	1,944	-	1,944	Sand and oil.
Provincetown, . . . . .	5,095 56	-	5,095 56 <sup>3</sup>	9,930	-	9,930	Macadam.
Wellfleet, . . . . .	1,653 00	-	1,653 00	2,250	-	2,250	Broken stone and clay.
	\$10,208 96	\$1,000 00	\$11,208 96	22,874	-	22,874	
<i>Berkshire County.</i>							
Alford, . . . . .	\$2,069 00	\$700 00 <sup>4</sup>	\$2,769 00	6,813	- <sup>2</sup>	6,813	Gravel.
Becket, . . . . .	2,350 00	1,200 00 <sup>5</sup>	3,550 00	4,580	- <sup>2</sup>	4,580	Gravel and macadam.
Egremont, . . . . .	4,246 00	1,000 00 <sup>6</sup>	5,246 00	9,730	- <sup>2</sup>	9,730	Gravel.
Florida, . . . . .	4,586 00	550 00 <sup>7</sup>	5,136 00	6,821	1,775	8,596	Gravel.
Hancock, . . . . .	800 00	398 39	1,198 39	1,150	740	1,890	Gravel.
Hinsdale, . . . . .	1,000 00	1,500 00 <sup>8</sup>	2,500 00	1,125	2,000	3,125	Bituminous macadam and gravel.

Lanesborough,	.	.	.	.	2,952 00	—	2,952 00	5,500	—	5,500	Gravel road and steel concrete bridge.
Monterey,	.	.	.	.	3,418 00	550 00 <sup>7</sup>	3,968 00	14,200	— <sup>2</sup>	14,200	Gravel and culverts.
Mount Washington,	.	.	.	.	2,102 00	—	2,102 00	2,780	—	2,780	Gravel and bridge repairs.
New Ashford,	.	.	.	.	961 00	—	961 00	2,000	—	2,600	Gravel road and culvert construction and repairs.
New Marlborough,	.	.	.	.	7,728 00	1,150 00 <sup>8</sup>	8,878 00	22,550	2,200	24,750	Gravel.
Otis,	.	.	.	.	4,185 92	600 00	4,785 92	11,250	— <sup>2</sup>	11,250	Gravel road and culvert repairs.
Peru,	.	.	.	.	2,391 00	400 00	2,791 00	8,745	600	9,345	Gravel.
Richmond,	.	.	.	.	750 00	1,000 00	1,750 00 <sup>3</sup>	1,389	2,100	3,489	Gravel and macadam.
Sandisfield,	.	.	.	.	8,110 00	1,000 00 <sup>9</sup>	9,110 00	20,018	— <sup>2</sup>	20,018	Macadam.
Savoy,	.	.	.	.	5,265 00	590 00	5,855 00	10,550	296	10,846	Gravel.
Sheffield,	.	.	.	.	7,488 00	—	7,488 00	14,232	—	14,232	Grading and gravel.
Tyringham,	.	.	.	.	3,965 00	800 00 <sup>10</sup>	4,765 00	5,550	— <sup>2</sup>	5,550	Grading and macadam.
Washington,	.	.	.	.	4,598 00	800 00 <sup>4</sup>	5,398 00	8,570	1,370	9,940	Grading and gravel.
West Stockbridge,	.	.	.	.	6,026 00	800 00 <sup>11</sup>	6,826 00	13,195	1,300	14,495	Gravel.
Windsor,	.	.	.	.	1,000 00	500 00	1,500 00 <sup>3</sup>	1,110	— <sup>2</sup>	1,110	Macadam.
<i>Bristol County.</i>							\$89,619 31	172,458	12,381	184,839	
Easton,	.	.	.	.	\$12,000 00	—	\$12,000 00 <sup>3</sup>	31,686	—	31,686	Macadam.
Norton,	.	.	.	.	4,176 00	—	4,176 00 <sup>3</sup>	9,850	—	9,850	Macadam.

*Bristol County.*

1 Town contributed \$3,000.

<sup>2</sup> Work begun but not yet completed.

<sup>3</sup> Town contributed an equal amount.

<sup>4</sup> Town contributed \$300.

6 Town contributed \$700.

<sup>7</sup> Town contributed \$150.

<sup>8</sup> Town contributed \$1,000.

<sup>9</sup> Town contributed \$750.

<sup>9</sup> Town contributed \$400.

<sup>1</sup> Town contributed \$200.

WORK DONE UNDER THE "SMALL TOWN" ACT — *Continued.*

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	
<i>Bristol County — Con.</i>							
Raynham, . . . . .	\$3,316 00	-	\$3,316 00	6,135	-	6,135	Macadam.
Rehoboth, . . . . .	3,500 00	-	3,500 00 <sup>1</sup>	5,100	-	5,100	Macadam.
Westport, . . . . .	3,400 00	-	3,400 00 <sup>1</sup>	6,150	-	6,150	Macadam.
	\$26,392 00	-	\$26,392 00	58,921	-	58,921	-
<i>Dukes County.</i>							
Gay Head, . . . . .	\$400 00	-	\$400 00	-	-	-	-
	\$400 00	-	\$400 00	-	-	-	-
<i>Essex County.</i>							
Boxford, . . . . .	\$1,661 00	\$600 00	\$2,261 00 <sup>1</sup>	12,380	2,500	14,880	Gravel.
Danvers, . . . . .	7,000 00	-	7,000 00	19,700	-	19,700	Gravel.
Essex, . . . . .	932 00	-	932 00 <sup>1</sup>	22,000	-	22,000	Gravel and repairs.
Georgetown, . . . . .	2,950 00	-	2,950 00 <sup>1</sup>	15,437	-	15,437	Gravel and macadam.
Groveland, . . . . .	1,000 00	-	1,000 00	12,740	-	12,740	Bituminous gravel.
Marblehead, . . . . .	7,800 00	-	7,800 00 <sup>1</sup>	11,008	-	11,008	Macadam.
Middleton, . . . . .	3,044 00	400 00	3,444 00	9,300	1,500	10,800	Gravel.
North Andover, . . . . .	1,500 00	500 00	2,000 00 <sup>1</sup>	4,550	4,500	9,050	Gravel.
Salisbury, . . . . .	1,948 00	-	1,948 00	2,150	-	2,150	Macadam.
Saugus, . . . . .	1,200 00	-	1,200 00 <sup>1</sup>	-	900 <sup>2</sup>	900	Bituminous macadam.
Swampscott, . . . . .	2,925 00	-	2,925 00 <sup>1</sup>	5,200	-	5,200	Macadam.

Township,	4,084 00	—	4,984 00	35,375	—	35,375	Gravel.
<i>Franklin County.</i>							
Topsfield,	\$36,944 00	\$1,500 00	\$38,444 00	149,840	9,400	159,240	Gravel.
Barnardston,	\$2,465 00	\$500 00 <sup>1</sup>	\$2,965 00	13,800	2,600	16,400	Gravel.
Charlemont,	3,200 00	—	3,200 00	1,754	—	1,754	Gravel.
Colrain,	900 00	—	900 00	2,650	—	2,650	Gravel.
Conway,	5,252 00	1,000 00 <sup>2</sup>	6,252 00	9,715	2,245	11,960	Gravel.
Gill,	3,212 00	—	3,212 00	11,575	—	11,575	Gravel, road and bridge repairs.
Hawley,	2,897 00	100 00 <sup>1</sup>	2,997 00	7,600	— <sup>4</sup>	7,600	Grading and gravel.
Heath,	3,527 00	500 00 <sup>6</sup>	4,027 00	8,272	— <sup>4</sup>	8,272	Gravel.
Leverett,	5,576 00	750 00 <sup>8</sup>	6,326 00	15,079	— <sup>4</sup>	15,079	Gravel.
Leyden,	3,193 00	400 00	3,593 00	11,700	1,200	12,900	Gravel.
Monroe,	3,898 00	569 04 <sup>7</sup>	4,467 04	7,320	1,800	9,120	Gravel.
New Salem,	5,452 00	1,100 00 <sup>3</sup>	6,552 00	8,737	4,285	13,022	Gravel.
Orange,	1,950 00	—	1,950 00 <sup>1</sup>	4,470	—	4,470	Gravel.
Rowe,	3,623 00	600 00 <sup>7</sup>	4,223 00	9,716	2,000	11,716	Gravel.
Shutesbury,	3,734 00	200 00 <sup>8</sup>	3,934 00	10,950	—	10,950	Gravel.
Warwick,	5,470 00	—	5,470 00	7,000	—	7,000	Gravel.
Wendell,	6,588 00	950 00 <sup>6</sup>	7,538 00	11,800	— <sup>4</sup>	11,800	Grading and gravel.
	\$60,937 00	\$6,669 04	\$67,606 04	142,138	14,130	156,268	

<sup>1</sup> Town contributed an equal amount.<sup>2</sup> Work done with allotment made in previous year.<sup>3</sup> Town contributed \$500.<sup>4</sup> Work begun but not completed.<sup>6</sup> Town contributed \$100.<sup>7</sup> Town contributed \$250.<sup>8</sup> Town contributed \$200.<sup>8</sup> To complete work begun in 1911.

WORK DONE UNDER THE "SMALL TOWN" ACT — *Continued.*

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	
<i>Hampden County.</i>							
Blandford, . . . . .	\$6,235 16	-	\$6,235 16	9,010	-	9,010	Grading and gravel.
Chester, . . . . .	200 00	\$421 79 <sup>1</sup>	621 79	850	1,100	1,950	Gravel.
East Longmeadow, . . . . .	1,680 00	183 75 <sup>2</sup>	1,863 75	2,850	1,760	4,610	Gravel and macadam.
Granville, . . . . .	6,523 00	800 00	7,323 00	13,597	- <sup>3</sup>	13,597	Grading and gravel.
Hampden, . . . . .	4,203 00	850 00 <sup>4</sup>	5,053 00	36,200	- <sup>3</sup>	36,200	Gravel.
Holland, . . . . .	564 00	-	564 00	425	2,000 <sup>5</sup>	2,425	Grading and gravel.
Longmeadow, . . . . .	1,200 00	-	1,200 00	1,425	-	1,425	Macadam and concrete culvert.
Montgomery, . . . . .	1,820 00	-	1,820 00	4,750	-	4,750	Gravel.
Russell, . . . . .	1,393 85	-	1,393 85	600	-	600	-
Southwick, . . . . .	5,128 00	-	5,128 00	20,586	-	20,586	Gravel.
Tolland, . . . . .	3,942 06	800 00 <sup>6</sup>	4,742 06	5,500	- <sup>3</sup>	5,500	Grading and concrete culvert.
	\$32,894 07	\$3,055 54	\$35,949 61	95,793	4,860	100,653	
<i>Hampshire County.</i>							
Amherst, . . . . .	\$4,800 00	-	\$4,800 00 <sup>2</sup>	4,435	-	4,435	Macadam.
Chesterfield, . . . . .	5,170 00	\$700 00	5,870 00	5,750	1,311	7,061	Gravel.
Cummington, . . . . .	4,233 00	-	4,233 00	9,900	-	9,900	Gravel.





## WORK DONE UNDER THE "SMALL TOWN" ACT—Continued.

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	
<i>Middlesex County — Con.</i>							
Billerica, . . . . .	\$5,984 00	-	\$5,984 00 <sup>1</sup>	8,250	-	8,250	Macadam.
Boxborough, . . . . .	-	\$500 00 <sup>2</sup>	500 00	-	2,200	2,200	Gravel.
Burlington, . . . . .	6,000 00	1,700 00	7,700 00 <sup>1</sup>	7,100	4,609	11,709	Macadam.
Carlisle, . . . . .	2,936 00	500 00	3,436 00	12,550	- <sup>3</sup>	12,550	Gravel.
Dracut, . . . . .	4,000 00	2,000 00	6,000 00 <sup>1</sup>	2,800	1,800	4,600	Macadam.
Dunstable, . . . . .	2,199 00	800 00 <sup>4</sup>	2,999 00	13,300	- <sup>3</sup>	13,300	Gravel.
Framingham, . . . . .	4,000 00	-	4,000 00 <sup>1</sup>	4,200	-	4,200	Macadam.
Hopkinton, . . . . .	2,000 00	-	2,000 00 <sup>1</sup>	-	3,400 <sup>5</sup>	3,400	Gravel.
Hudson, . . . . .	5,000 00	-	5,000 00	19,057	-	19,057	Grading and gravel.
Littleton, . . . . .	2,012 00	-	2,012 00 <sup>1</sup>	4,492	-	4,492	Gravel.
Maynard, . . . . .	9,383 89	-	9,383 89 <sup>1</sup>	15,233	-	15,233	Grading, macadam and bridge repairs.
North Reading, . . . . .	7,500 00	2,000 00	9,500 00 <sup>1</sup>	15,633	- <sup>3</sup>	15,633	Macadam.
Pepperell, . . . . .	1,000 00	-	1,000 00 <sup>1</sup>	4,050	-	4,050	Gravel.
Reading, . . . . .	3,132 00	1,000 00	4,132 00 <sup>1</sup>	4,150	920	5,070	Macadam.
Sherborn, . . . . .	5,558 00	500 00 <sup>1</sup>	6,058 00	28,700	2,800	31,500	Gravel.
Shirley, . . . . .	5,534 00	1,000 00 <sup>1</sup>	6,534 00	22,450	- <sup>6</sup>	22,450	Gravel.
Stow, . . . . .	3,145 00	-	3,145 00	8,472	-	8,472	Gravel.

Townsend, . . . . .	-	400 00 <sup>1</sup>	400 00	-	1,500	1,500	Gravel.
Wakefield, . . . . .	5,150 00	-	5,150 00 <sup>1</sup>	6,986	-	6,986	Macadam.
Wayland, . . . . .	1,449 50	-	1,449 50 <sup>1</sup>	1,175	-	1,175	Bituminous macadam.
Westford, . . . . .	2,366 30	-	2,366 30	5,400	-	5,400	Gravel.
	\$86,149 69	\$10,400 00	\$96,549 69	208,935	17,229	226,164	
<i>Norfolk County.</i>							
Avon, . . . . .	\$2,969 00	\$400 00	\$3,369 00	8,290	455	8,745	Gravel and macadam.
Bellingham, . . . . .	1,412 00	-	1,412 00	2,750	-	2,750	Macadam.
Medfield, . . . . .	1,040 00	-	1,040 00 <sup>1</sup>	720	-	720	Macadam.
Medway, . . . . .	4,828 00	-	4,828 00 <sup>1</sup>	11,256	-	11,256	Macadam.
Millis, . . . . .	5,136 00	-	5,136 00	14,150	-	14,150	Gravel.
Norfolk, . . . . .	1,500 00	-	1,500 00 <sup>1</sup>	-	8,870 <sup>5</sup>	8,870	Gravel.
	\$16,885 00	\$400 00	\$17,285 00	37,166	9,325	46,491	
<i>Plymouth County.</i>							
Abington, . . . . .	\$2,600 00	-	\$2,600 00 <sup>1</sup>	5,760	-	5,760	Macadam.
Bridgewater, . . . . .	-	\$576 20 <sup>7</sup>	576 20	-	3,590	3,590	Surfacing.
Carver, . . . . .	13,990 00	2,000 00	15,990 00 <sup>1</sup>	46,545	- <sup>3</sup>	46,545	Macadam.
East Bridgewater, . . . . .	9,142 87	-	9,142 87 <sup>1</sup>	17,090	-	17,090	Macadam.
Halifax, . . . . .	4,304 00	1,000 00 <sup>8</sup>	5,304 00	7,725	2,857	10,582	Macadam.

<sup>1</sup> Town contributed an equal amount.<sup>2</sup> Town contributed \$100.<sup>3</sup> Work begun but not completed.<sup>4</sup> Town contributed \$400.<sup>5</sup> Work done with allotment made in previous year.<sup>6</sup> Work not yet begun.<sup>7</sup> Town contributed \$3,000.<sup>8</sup> Town contributed \$500.

## WORK DONE UNDER THE "SMALL TOWN" ACT — Continued.

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	
<i>Plymouth County — Con.</i>							
Hanover, . . . . .	\$2,048 82	-	\$2,048 82	2,827	-	2,827	Macadam.
Hanson, . . . . .	10,992 00	\$2,000 00	12,992 00 <sup>1</sup>	33,824	4,937	38,761	Macadam.
Lakeville, . . . . .	2,200 00	-	2,200 00	12,790	-	12,790	Macadam and gravel.
Norwell, . . . . .	3,880 00	-	3,880 00 <sup>1</sup>	19,111	-	19,111	Gravel.
Pembroke, . . . . .	5,423 45	-	5,423 45	31,907	-	31,907	Gravel road and concrete bridge.
Plymouth, . . . . .	1,000 00	-	1,000 00 <sup>1</sup>	2,000	-	2,000	Sand and oil.
Plympton, . . . . .	3,067 00	400 00	3,467 00	16,713	4,386	21,099	Gravel.
Rochester, . . . . .	5,350 00	1,000 00 <sup>1</sup>	6,350 00	25,304	- <sup>2</sup>	25,304	Macadam and gravel.
Rockland, . . . . .	1,000 00	-	1,000 00 <sup>1</sup>	2,165	-	2,165	Macadam.
Wareham, . . . . .	1,500 00	174 43 <sup>3</sup>	1,674 43 <sup>1</sup>	7,200	-	7,200	Sand and oil.
	\$66,498 14	\$7,150 63	\$73,648 77	230,961	15,770	246,731	
<i>Worcester County.</i>							
Ashburnham, . . . . .	\$7,094 00	\$1,000 00 <sup>1</sup>	\$8,094 00	18,335	3,630	21,965	Gravel.
Berlin, . . . . .	4,424 00	800 00 <sup>4</sup>	5,224 00	15,333	3,500	18,833	Gravel.

	5,014 00	400 00	5,414 00	26,960	1,000	27,960	Gravel.
Bolton, . . . . .	5,014 00	400 00	5,414 00	26,960	1,000	27,960	Gravel.
Boylston, . . . . .	3,060 00	-	3,060 00	8,530	3,660 <sup>8</sup>	12,190	Gravel.
Brimfield, . . . . .	-	1,000 00 <sup>1</sup>	1,000 00	-	- <sup>2</sup>	-	-
Brookfield, . . . . .	900 00	-	900 00	2,500	-	2,500	Macadam.
Dana, . . . . .	4,469 00	700 00	5,169 00	12,125	1,800	13,925	Gravel.
Hardwick, . . . . .	3,000 00	3,000 00	6,000 00 <sup>1</sup>	-	8,350	8,350	Macadam.
Harvard, . . . . .	-	800 00 <sup>6</sup>	800 00	-	- <sup>2</sup>	-	-
Holden, . . . . .	1,200 00	-	1,200 00 <sup>1</sup>	1,600	-	1,600	Gravel.
Hubbardston, . . . . .	3,085 00	1,000 00 <sup>7</sup>	4,085 00	6,655	1,925	8,580	Gravel.
Mendon, . . . . .	4,464 00	1,000 00 <sup>1</sup>	5,464 00	18,742	- <sup>2</sup>	18,742	Gravel and repairs.
Millbury, . . . . .	-	1,500 00 <sup>8</sup>	1,500 00	-	2,045	2,045	Macadam.
New Braintree, . . . . .	900 00	600 00 <sup>9</sup>	1,500 00	1,400	- <sup>10</sup>	1,400	Macadam.
Oakham, . . . . .	4,418 00	1,500 00 <sup>11</sup>	5,918 00	11,910	- <sup>2</sup>	11,910	Gravel and macadam.
Oxford, . . . . .	3,100 00	-	3,100 00 <sup>1</sup>	13,698	-	13,698	Gravel.
Paxton, . . . . .	-	1,400 00 <sup>12</sup>	1,400 00	-	- <sup>10</sup>	-	-
Petersham, . . . . .	6,960 00	-	6,960 00	10,435	-	10,435	Gravel.

<sup>1</sup> Town contributed an equal amount.<sup>2</sup> Work begun but not completed.<sup>3</sup> To complete work begun in 1911.<sup>4</sup> Town contributed \$400.<sup>5</sup> Work done with allotment made in previous year.<sup>6</sup> Town contributed \$1,600.<sup>7</sup> Town contributed \$500.<sup>8</sup> Town contributed \$3,000.<sup>9</sup> Town contributed \$150.<sup>10</sup> Work not yet begun.<sup>11</sup> Town contributed \$1,000.<sup>12</sup> Town contributed \$2,000.

WORK DONE UNDER THE "SMALL TOWN" ACT — *Concluded.*

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	
<i>Worcester County — Con.</i>							
Phillipston, . . . . .	\$700 00	\$500 00 <sup>1</sup>	\$1,200 00	-	14,520	14,520	Gravel.
Princeton, . . . . .	-	1,500 00	1,500 00 <sup>1</sup>	-	- <sup>2</sup>	-	-
Royalston, . . . . .	-	747 65 <sup>3</sup>	747 65	-	2,100	2,100	Gravel.
Rutland, . . . . .	1,804 00	1,804 00	-	2,581	-	2,581	Gravel and macadam.
Shrewsbury, . . . . .	1,300 00	-	1,300 00	3,800	-	3,800	Gravel.
Southbridge, . . . . .	6,400 00	2,725 00	9,125 00 <sup>1</sup>	2,283	3,700	5,993	Vitrified paving brick (paved) and bituminous macadam.
Westminster, . . . . .	-	500 00 <sup>1</sup>	500 00	-	2,050	2,050	Gravel.
Winchendon, . . . . .	4,000 00	-	4,000 00 <sup>1</sup>	9,210	-	9,210	Gravel.
	\$66,292 00	\$20,672 65	\$86,964 65	166,107	48,280	214,387	

<sup>1</sup> Town contributed an equal amount.<sup>2</sup> Work begun but not completed.<sup>3</sup> Town contributed \$400.

## SUMMARY.

COUNTIES.	ALLOTMENTS.			LENGTHS BUILT (FEET).		
	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.	Previous to 1912.	In 1912.	Total to Nov. 30, 1912.
Barnstable,	\$10,208 96	\$1,000 00	\$11,208 96	22,874	-	22,874
Berkshire,	76,080 92	13,538 39	89,619 31	172,458	12,381	184,839
Bristol,	26,392 00	-	26,392 00	58,921	-	58,921
Dukes,	400 00	-	400 00	-	-	-
Essex,	36,944 00	1,500 00	38,444 00	149,840	9,400	159,240
Franklin,	60,937 00	6,669 04	67,606 04	142,138	14,130	156,268
Hampden,	32,894 07	3,055 54	35,949 61	95,793	4,860	100,653
Hampshire,	53,719 00	8,398 50	62,117 50	114,937	11,696	126,633
Middlesex,	86,149 69	10,400 00	96,549 69	208,935	17,229	226,164
Norfolk,	16,385 00	400 00	17,285 00	37,166	9,325	46,491
Plymouth,	66,498 14	7,150 63	73,648 77	230,961	15,770	246,731
Worcester,	66,292 00	20,672 65	86,964 65	166,107	48,280	214,387
	\$533,400 78	\$72,784 75	\$606,185 53	1,400,130	143,071	1,543,201

## APPENDIX L.

## TRAFFIC RECORDS.

*Daily Averages from Traffic Records taken Fourteen Hours*

## DIVISION 1.

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
101	Clarksburg, . . . .	82	63	3	37	14	70	2
102	Williamstown, . . . .	49	37	8	24	36	146	10
103A	Williamstown, . . . .	30	16	4	10	7	35	8
103B	Williamstown, . . . .	28	11	4	6	10	59	1
104	Lanesborough, . . . .	12	3	2	5	6	50	1
105	Cheshire, . . . .	32	23	4	13	13	102	5
106	Windsor, . . . .	22	7	5	13	2	17	1
107A	Pittsfield, . . . .	22	11	2	12	10	49	3
107B	Pittsfield, . . . .	39	21	5	22	35	243	6
108	Pittsfield, . . . .	47	17	16	25	65	561	25
109A	Lenox, . . . .	65	28	27	48	42	235	18
109B	Lenox, . . . .	79	38	42	24	24	247	27
110A	Stockbridge, . . . .	86	40	18	17	28	134	2
110B	Stockbridge, . . . .	55	19	9	13	22	253	4
111A	Lee (east), . . . .	93	31	7	29	26	63	9
111B	Lee (east), . . . .	109	27	7	23	33	137	12
112A	Egremont, . . . .	24	4	2	8	7	26	—
112B	Egremont, . . . .	14	2	5	3	7	71	2
112c	Egremont, . . . .	55	18	13	30	12	145	11
113	Huntington, . . . .	58	21	5	32	34	173	2
114	West Springfield, . . . .	10	37	2	13	60	306	21
115A	South Hadley, . . . .	54	161	5	65	20	58	7
115B	South Hadley, . . . .	92	166	1	40	12	44	6
116	Chicopee, . . . .	36	142	5	99	49	151	48



## APPENDIX L.

## TRAFFIC RECORDS.

*Each Day for One Week, beginning Aug. 19, 1912, at 7 A.M.*

## DIVISION 1.

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
85	100	185	86	271	31	37	68	32	Near Red bridge.
57	61	118	192	310	18	20	38	62	Near North Adams line.
34	26	60	50	110	31	24	55	45	Idlewild, Hancock Road.
32	17	49	70	119	27	14	41	59	Idlewild, New Ashford Road.
14	8	22	57	79	18	10	28	72	On New Ashford Road.
36	36	72	120	192	19	19	38	62	Near center.
27	20	47	20	67	40	30	70	30	Post office.
24	23	47	62	109	22	22	44	56	Richmond Road to junction.
44	43	87	284	371	12	12	24	76	Lebanon Road at junction.
63	42	105	651	756	8	6	14	86	Near Lenox line.
92	76	168	295	463	20	16	36	64	Lee Road at junction.
121	62	183	298	481	25	13	38	62	Stockbridge Road at junction.
104	57	161	164	325	32	18	50	50	Lee Road at junction.
64	32	96	279	375	17	9	26	74	Lenox Road at junction.
100	60	160	98	258	39	23	62	38	Stockbridge Road at junction.
116	50	166	182	348	33	14	47	53	Ladder Road at junction.
26	12	38	33	71	36	17	53	47	Corner Hillsdale and Sheffield roads.
19	5	24	80	104	18	5	23	77	Corner Hillsdale and Sheffield roads.
68	48	116	168	284	24	17	41	59	Great Barrington Road and Sheffield Road.
63	53	116	209	325	19	16	35	65	Near Phinney's stable.
12	50	62	387	449	3	11	14	86	Between underpasses.
59	226	285	85	370	16	61	77	23	Hadley Road at junction.
93	206	299	62	361	26	57	83	17	Granby Road at junction.
41	241	282	248	530	8	45	53	47	August 25 and September 9-14, inclusive.

*Daily Averages from Traffic*

DIVISION 1 — *Concluded.*

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
117	Agawam, . . . .	49	43	3	22	75	293	34
118	Longmeadow, . . . .	43	65	2	23	88	375	26
119	Wilbraham, . . . .	8	10	1	4	55	297	16
120	Brimfield, . . . .	18	3	2	11	7	35	-
121	Ware, . . . .	61	23	2	3	20	66	1
122	Warren, . . . .	48	50	1	9	52	257	4
123A	Brookfield, . . . .	28	15	1	3	5	35	1
123C	Brookfield, . . . .	24	11	2	6	21	279	6
124	Charlton, . . . .	35	7	1	12	9	38	3
125	Auburn, . . . .	46	64	1	60	21	111	9
126	Paxton, . . . .	135	52	7	27	34	141	9
127	Holden, . . . .	150	84	-	30	37	196	10
128	Great Barrington, . . . .	77	3	22	48	8	98	2
129	Holyoke, . . . .	8	14	1	9	50	248	17
	Totals, . . . .	1,923	1,387	247	878	1,056	5,844	369

## DIVISION 2.

201A	Florida, . . . .	11	5	1	6	1	6	-
201B	Florida, . . . .	13	14	-	3	1	4	-
202A	Charlemont, . . . .	6	1	1	2	1	7	-
202B	Charlemont, . . . .	27	2	2	15	1	4	-
203	Hatfield, . . . .	28	12	1	8	27	151	3
204A	Deerfield, . . . .	212	92	5	66	44	162	11
204B	Deerfield, . . . .	203	102	3	55	72	269	11
205A	Bernardston, . . . .	59	16	2	4	11	110	1
205B	Bernardston, . . . .	29	11	3	6	8	113	1
206	Orange, . . . .	62	14	4	24	27	108	4
207A	Petersham, . . . .	49	11	3	3	8	17	-
207B	Petersham, . . . .	49	9	2	6	6	40	6
208	Westminster, . . . .	40	23	1	31	31	177	1
209	Fitchburg, . . . .	16	10	1	7	12	42	2
210	Ashby, . . . .	80	12	3	11	17	72	4
	Totals, . . . .	884	334	32	247	267	1,282	44

*Records, etc. — Continued.*DIVISION 1 — *Concluded.*

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
52	65	117	402	519	10	12	22	78	Near Whitman's corner.
45	88	133	489	622	7	14	21	79	River Road to Hartford.
9	14	23	368	391	2	3	5	95	Near Springfield line.
20	14	34	42	76	26	18	44	56	Palmer Road at junction.
63	26	89	87	176	36	15	51	49	Southwest end 1910 State highway.
49	59	108	313	421	12	14	26	74	Between Warren and West Warren.
29	18	47	41	88	33	21	54	46	North Brookfield Road at junction.
26	17	43	306	349	7	5	12	88	Leicester Road at junction.
36	19	55	50	105	34	18	52	48	East of post office.
47	124	171	141	312	15	40	55	45	Near Worcester line.
142	79	221	184	405	35	19	54	46	East of post office.
150	114	264	243	507	30	22	52	48	Near post office.
99	51	150	108	258	38	20	58	42	Near east end State highway.
9	23	32	315	347	3	7	10	90	Smith's Ferry Road at street car crossing.
2,170	2,265	4,435	7,269	11,704	-	-	-	-	

## DIVISION 2.

12	11	23	7	30	40	37	77	23	Near Hoosac Tunnel to get travel over mountain.
13	17	30	5	35	37	49	86	14	Near Hoosac Tunnel, to get travel to Monroe bridge.
7	3	10	8	18	39	17	56	44	Near Zoar bridge, Hoosac Tunnel Road.
29	17	46	5	51	57	33	90	10	Near Zoar bridge, Rowe Road.
29	20	49	181	230	13	9	22	78	For through travel.
217	158	375	217	592	36	27	63	37	Sunderland Road at junction.
206	157	363	352	715	29	22	51	49	River Road (south) at junction.
61	20	81	122	203	30	10	40	60	Northfield Road at junction.
32	17	49	122	171	19	10	29	71	Greenfield Road at junction.
66	38	104	139	243	27	16	43	57	Near Erving line.
52	14	66	25	91	57	16	73	27	Road by Gaston's.
51	15	66	52	118	43	14	57	43	Barre Road.
41	54	95	209	304	13	18	31	69	Near Fitchburg.
17	17	34	56	90	19	19	38	62	Ashburnham Road.
83	23	106	93	199	42	11	53	47	West of village.
916	581	1,497	1,593	3,090	-	-	-	-	

*Daily Averages from Traffic*

## DIVISION 3.

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
301	Franklin, . . . . .	35	22	1	9	16	40	2
302	Uxbridge, . . . . .	25	23	1	16	33	158	11
303	Sutton, . . . . .	104	26	1	7	-	15	18
304A	Grafton, . . . . .	36	36	-	4	7	30	4
304B	Grafton, . . . . .	42	51	-	7	20	72	10
305	Holliston, . . . . .	18	16	-	5	10	49	4
306	Natick, . . . . .	36	33	1	20	69	254	15
307A	Wayland, . . . . .	56	28	-	14	18	69	4
307B	Wayland, . . . . .	45	42	-	18	70	351	10
308	Ashland, . . . . .	27	17	1	3	11	19	1
309	Southborough, . . . . .	29	12	2	5	12	54	-
310	Shrewsbury, . . . . .	68	67	2	34	84	416	15
311	West Boylston, . . . . .	75	46	1	7	44	182	6
312	Leominster, . . . . .	25	23	9	12	24	85	5
313A	Ayer, . . . . .	72	23	-	4	15	77	5
313B	Ayer, . . . . .	48	20	-	6	12	38	3
314A	Concord, . . . . .	4	8	-	5	3	10	-
314B	Concord, . . . . .	11	12	-	7	31	180	1
315	Lexington, . . . . .	66	112	20	86	174	253	27
316	Chelmsford, . . . . .	42	26	-	7	12	24	6
317	Chelmsford, . . . . .	54	66	6	26	55	181	9
318	Lowell, . . . . .	11	8	1	3	61	261	12
319	Tyngsborough, . . . . .	32	12	-	5	47	269	6
320	Tewksbury, . . . . .	47	28	1	12	51	179	24
321	Andover, . . . . .	14	22	-	10	74	427	17
322	Andover (north), . . . . .	99	129	1	27	63	497	31
323	Methuen, . . . . .	15	27	-	12	31	183	16
324	West Newbury, . . . . .	84	54	2	16	17	232	6
325	Amesbury, . . . . .	38	24	2	12	44	211	7
326A	Salisbury Center, . . . . .	99	86	4	26	128	494	12
326B	Salisbury Center, . . . . .	73	64	3	18	88	234	10
327	Rowley, . . . . .	69	45	3	9	79	377	9
328	Hamilton, . . . . .	75	26	3	24	113	443	28

*Records, etc.* — Continued.

## DIVISION 3.

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
36	31	67	58	125	29	25	54	46	Near Unionville.
26	39	65	202	267	10	15	25	75	Near Blackstone line.
105	33	138	33	171	62	19	81	19	Near Manchaug.
36	40	76	41	117	30	35	65	35	Grafton Road (north) at junction.
42	58	100	102	202	21	29	50	50	Millbury Road (north) at junction.
18	21	39	63	102	18	20	38	62	Near Milford line.
37	53	90	338	428	9	12	21	79	Near Wellesley line.
56	42	98	91	189	30	22	52	48	Cochituate Road at junction.
45	60	105	431	536	8	11	19	81	Weston Road at junction.
28	20	48	31	79	36	25	61	39	Near Southborough line.
31	17	48	66	114	27	15	42	58	Near Westborough line.
70	101	171	515	686	10	15	25	75	West of center.
76	53	129	232	361	21	15	36	64	Near north end of State highway.
34	35	69	114	183	19	19	38	62	Near north end of State highway.
72	27	99	97	196	37	14	51	49	Grafton Road at junction.
48	26	74	53	127	38	20	58	42	North Shirley Road at junction.
4	13	17	13	30	14	43	57	43	Harvard Road at junction.
11	19	30	212	242	5	8	13	87	Ayer Road at junction.
86	198	284	454	738	12	27	39	61	On Concord Road.
42	33	75	42	117	36	28	64	36	West of Chelmsford Center.
60	92	152	245	397	15	23	38	62	(North) Lowell line.
12	11	23	334	357	3	3	6	94	Near Tyngsborough line.
32	17	49	322	371	9	5	14	86	North of center.
48	40	88	254	342	14	12	26	74	Near center.
14	32	46	518	564	2	6	8	92	Near North Reading line.
100	156	256	591	847	11	18	29	71	Just south of lower road to Lowell.
15	39	54	230	284	5	14	19	81	Near Haverhill line.
86	70	156	255	411	21	17	38	62	Near post office.
40	36	76	262	338	12	11	23	77	Near Merrimac line.
103	112	215	634	849	12	13	25	75	New Hampshire Road at junction.
76	82	158	332	490	15	17	32	68	Amesbury Road at junction.
72	54	126	465	591	12	9	21	79	Near Burk's corner.
78	50	128	584	712	11	7	18	82	Ipswich line.

*Daily Averages from Traffic*DIVISION 3 — *Concluded.*

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
329A	Essex, . . . . .	25	28	3	11	24	93	2
329B	Essex, . . . . .	23	32	2	9	28	78	5
329C	Essex, . . . . .	30	43	2	10	35	158	2
330	Gloucester, . . . . .	32	36	5	8	160	719	54
331	Beverly, . . . . .	278	105	29	41	174	1,248	46
332A	Beverly, . . . . .	45	46	4	25	25	164	9
332B	Beverly, . . . . .	84	103	4	99	91	432	37
333	Topsfield, . . . . .	14	10	2	1	10	82	2
334	Middleton, . . . . .	41	25	—	15	8	42	1
335	Salem, . . . . .	58	64	15	47	210	1,102	63
336A	Lynnfield, . . . . .	35	36	3	10	38	201	10
336B	Lynnfield, . . . . .	47	39	1	14	41	175	16
337A	Stoneham, . . . . .	38	84	2	25	111	521	21
337B	Stoneham, . . . . .	17	48	—	13	19	91	6
338	Woburn, . . . . .	28	22	—	22	28	143	3
339	Lynn, . . . . .	41	23	1	14	264	1,820	12
340	Saugus, . . . . .	22	207	2	60	15	72	75
341	Chelsea, . . . . .	56	230	19	127	16	51	50
342	Somerville, . . . . .	43	212	4	181	20	99	45
343	Boston, . . . . .	37	80	3	42	42	184	42
	Totals, . . . . .	2,568	2,707	166	1,250	2,875	13,839	835

## DIVISION 4.

401A	Wrentham, . . . . .	32	14	1	6	38	263	7
401B	Wrentham, . . . . .	67	35	2	9	44	275	9
401C	Wrentham, . . . . .	72	30	—	8	17	98	4
401D	Wrentham, . . . . .	54	26	2	6	16	58	3
402	Westwood, . . . . .	25	41	3	18	55	264	26
403	Quincy, . . . . .	53	191	1	72	160	695	35
404	Cohasset, . . . . .	72	33	7	15	67	409	9
405A	Weymouth, . . . . .	26	26	4	24	15	83	4
405B	Weymouth, . . . . .	26	21	1	12	21	58	12

*Records, etc. — Continued.*DIVISION 3 — *Concluded.*

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
28	39	67	119	186	15	21	36	64	Ipswich Road at junction.
25	41	66	111	177	14	23	37	63	Hamilton Road at junction.
32	53	85	195	280	11	19	30	70	Gloucester Road at junction.
37	44	81	933	1,014	4	4	8	92	At Magnolia Avenue.
307	146	453	1,468	1,921	16	8	24	76	Prides and Haskell streets.
49	71	120	198	318	16	22	38	62	On Dodge Street at crossing.
88	202	290	560	850	10	24	34	66	South of Dodge Street.
16	11	27	94	121	13	9	22	78	Turnpike at Small-town Road.
41	40	81	51	132	31	30	61	39	West of center.
73	111	184	1,375	1,559	5	7	12	88	Near pumping station, Loring Avenue.
38	46	84	249	333	11	13	24	76	Turnpike and Wakefield Road (south).
48	53	101	232	333	14	16	30	70	Turnpike and Wakefield Road (east).
40	109	149	653	802	5	14	19	81	Reading Road at junction.
17	61	78	116	194	9	31	40	60	Wakefield Road at junction.
28	44	72	174	246	11	18	29	71	Near Winchester line.
42	37	79	2,096	2,175	2	2	4	96	Saugus River bridge.
24	267	291	162	453	5	59	64	36	Revere-Saugus Road.
75	357	432	117	549	14	65	79	21	East Boston end.
47	393	440	164	604	8	65	73	27	Somerville-Medford Road.
40	122	162	268	430	9	28	37	63	Grove Street.
2,734	3,957	6,691	17,549	24,240	-	-	-	-	

## DIVISION 4.

33	20	53	308	361	9	6	15	85	Boston Road at junction with Franklin Road.
69	44	113	328	441	15	10	25	75	Providence Road at junction with Franklin Road.
72	38	110	119	229	31	17	48	52	Franklin Road at junction with Boston and Providence roads.
56	32	88	77	165	34	19	53	47	Foxborough Road, junction Providence Road.
28	59	87	345	432	7	13	20	80	Providence Turnpike.
54	263	317	890	1,207	4	22	26	74	West of Fore River.
79	48	127	485	612	13	8	21	79	West of post office.
30	50	80	102	182	17	27	44	56	Washington Street, junction of Main Street.
27	33	60	91	151	17	22	39	61	Main Street, junction of Washington Street.

*Daily Averages from Traffic*DIVISION 4 — *Continued.*

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
406A	Hanover, . . . . .	54	16	1	8	32	144	14
406B	Hanover, . . . . .	111	22	1	6	16	58	2
406C	Hanover, . . . . .	66	19	1	13	18	108	5
406D	Hanover, . . . . .	236	45	3	13	74	316	10
407	Duxbury, . . . . .	72	25	1	12	41	248	12
408A	Whitman, . . . . .	46	81	—	27	26	101	15
408B	Whitman, . . . . .	42	83	2	11	33	63	5
409A	Easton, . . . . .	22	33	—	19	24	118	12
409B	Easton, . . . . .	45	53	1	25	38	270	20
410	Taunton, . . . . .	45	54	—	7	35	163	9
411	Dighton, . . . . .	37	47	1	9	44	159	9
412	Swansea, . . . . .	56	65	2	25	43	174	12
413A	Somerset, . . . . .	133	199	2	21	56	248	16
413B	Somerset, . . . . .	61	104	—	12	39	155	16
413C	Somerset, . . . . .	95	142	2	24	49	165	11
414	Dartmouth, . . . . .	105	122	1	80	62	351	29
415	Freetown, . . . . .	23	17	1	13	14	83	6
416	Bridgewater, . . . . .	46	55	1	11	41	266	8
417	Middleborough, . . . . .	65	45	3	45	48	320	7
418A	Plymouth, . . . . .	3	1	—	1	4	67	3
418B	Plymouth, . . . . .	7	1	—	1	10	61	5
419A	Marion, . . . . .	53	58	1	25	80	440	20
419B	Marion, . . . . .	55	42	—	11	21	93	2
419C	Marion, . . . . .	43	30	—	8	70	379	19
419D	Marion, . . . . .	14	9	—	3	3	15	1
420A	Bourne (south), . . . . .	74	40	2	10	52	414	6
420B	Bourne, . . . . .	7	8	—	1	19	143	3
421	Falmouth, . . . . .	85	57	1	7	65	398	4
422	Sandwich, . . . . .	40	12	1	4	129	140	2
423A	Barnstable, . . . . .	44	18	—	6	7	105	3
423B	Barnstable, . . . . .	31	7	1	2	14	154	1
424	Barnstable, . . . . .	474	409	10	50	348	1,087	33



*Records, etc. — Continued.*DIVISION 4 — *Continued.*

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
55	24	79	190	269	20	9	29	71	Rockland Road at junction.
112	28	140	76	216	52	13	65	35	Norwell Road at junction.
67	32	99	131	230	29	14	43	57	Boston Road at junction.
239	58	297	400	697	34	8	42	58	Pembroke Road at junction.
73	37	110	301	411	18	9	27	73	Near Hound Brook.
46	108	154	142	296	16	37	53	47	Brockton Road, junction High Street.
44	94	138	101	239	17	40	57	43	Abington Road at junction.
22	52	74	154	228	10	23	33	67	Brockton Road at Turnpike and west.
46	78	124	328	452	10	17	27	73	Stoughton Road at Turnpike and west.
45	61	106	207	313	14	20	34	66	Near Westville.
38	56	94	212	306	12	18	30	70	Near Taunton line.
58	90	148	229	377	15	24	39	61	Near center.
135	220	355	320	675	20	33	53	47	Brightman Street Bridge Road.
61	116	177	210	387	16	30	46	54	Somerset Road near Brightman Street bridge.
97	166	263	225	488	20	34	54	46	Fall River-Providence Road near
106	202	308	442	750	14	27	41	59	Slade's Ferry bridge. Smith Mills village.
24	30	54	103	157	15	19	34	66	Near Webb's corner.
47	66	113	315	428	11	15	26	74	South of village.
68	90	158	375	533	13	17	30	70	Near Borden Hill Road to Wareham.
3	2	5	74	79	4	3	7	93	Sagamore Road at junction.
7	2	9	76	85	8	2	10	90	Bourndale Road at junction.
54	83	137	540	677	8	12	20	80	Corner Wareham and Mattapoisett roads.
55	53	108	116	224	25	24	49	51	Rochester Road near depot.
43	38	81	468	549	8	7	15	85	Wareham Road, junction Mattapoisett Road.
14	12	26	19	45	31	27	58	42	Mattapoisett Road near depot.
76	50	126	472	598	13	8	21	79	Falmouth Road at junction near
7	9	16	165	181	4	5	9	91	Bourne village. Sagamore Road at junction.
86	64	150	467	617	14	10	24	76	Near West Falmouth post office.
41	16	57	271	328	12	5	17	83	Near East Sandwich depot.
44	24	68	115	183	24	13	37	63	Junction State and Cotuit roads, Marston's Mills Road to West Barnstable station.
32	9	41	169	210	15	4	19	81	Junction State and Cotuit roads, Main Road to Osterville and Hyannis.
484	459	943	1,468	2,411	20	19	39	61	Hyannis village.

*Daily Averages from Traffic*DIVISION 4 — *Concluded.*

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
425	Yarmouth, . . . .	140	74	1	5	45	412	7
426	Harwich, . . . .	122	68	1	5	63	304	1
427A	Orleans, . . . .	89	42	—	9	29	176	2
427B	Orleans, . . . .	210	99	—	12	49	212	2
428	Wellfleet, . . . .	14	12	1	1	8	96	1
429	Seekonk (south), . . . .	49	69	2	54	42	156	16
430	Attleborough (west), . . . .	43	81	—	50	78	312	31
431	Brockton (south), . . . .	47	69	4	20	55	230	27
	Totals, . . . .	3,431	2,850	69	836	2,357	11,107	516

*Night Traffic,*

## MASSACHUSETTS HIGHWAY COMMISSION.

341	Chelsea, . . . .	9	43	—	19	2	8	5
342	Somerville, . . . .	24	66	3	61	19	74	11
343	Boston, . . . .	9	16	1	6	17	51	11
	Totals, . . . .	42	125	4	86	38	133	27

## METROPOLITAN PARK COMMISSION.

1	Lynn, . . . .	86	21	9	3	191	1,215	5
2	Revere, . . . .	27	23	—	14	271	1,527	10
3	Boston, . . . .	51	8	1	8	54	75	1
4	Somerville, . . . .	14	1	2	—	89	384	1
5	Medford, . . . .	21	—	2	—	127	365	—
6	Somerville, . . . .	64	159	4	127	415	1,715	44
7	Milton, . . . .	217	258	16	175	383	1,211	123
8	Medford, . . . .	36	—	—	—	299	1,544	5
	Totals, . . . .	516	470	34	327	1,829	8,036	189

Records, etc. — Continued.

DIVISION 4 — *Concluded.*

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
141	79	220	464	684	20	12	32	68	Yarmouthport.
123	73	196	368	564	22	13	35	65	Near Harwichport.
89	51	140	207	347	26	15	41	59	Brewster Road at junction.
210	111	321	263	584	36	19	55	45	Chatham Road at junction.
15	13	28	105	133	11	11	22	78	Near Eastham line.
51	123	174	214	388	13	32	45	55	About one-half mile from northerly end.
43	131	174	421	595	7	22	29	71	Point where electrics come on to road.
51	89	140	312	452	12	19	31	69	Junction Main Street and Hayward Avenue.
3,500	3,686	7,186	13,980	21,166	-	-	-	-	

7 P.M. to 7 A.M.

## MASSACHUSETTS HIGHWAY COMMISSION.

9	62	71	15	86	10	72	82	18	East Boston end.
27	127	154	104	258	11	49	60	40	Somerville-Medford Road.
10	22	32	79	111	9	20	29	71	Grove Street.
46	211	257	198	455	—	—	—	—	

## METROPOLITAN PARK COMMISSION.

95	24	119	1,411	1,530	6	2	8	92	Corner Prescott Place and Lynn Shore Reservation.
27	37	64	1,803	1,872	1	2	3	97	Saugus River bridge.
52	16	68	130	198	26	8	34	66	Soldiers Field Road.
16	1	17	474	491	3	—	3	97	Alewife Brook bridge.
23	—	23	492	515	5	—	5	95	Mystic Valley Parkway and Main Street.
68	286	354	2,174	2,528	3	11	14	86	Wellington bridge.
233	433	666	1,717	2,383	10	18	28	72	Mattapan bridge.
36	—	36	1,848	1,884	2	—	2	98	Malden River bridge.
550	797	1,347	10,054	11,401	—	—	—	—	

*Night Traffic,*

## BOSTON PARK DEPARTMENT.

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
1	Boston, . . . . .	122	60	21	16	323	1,387	5
2	Boston, . . . . .	104	50	24	197	453	1,880	301
3	Boston, . . . . .	93	198	49	98	117	491	63
	Totals, . . . . .	319	308	94	311	893	3,758	369

*Recapitulation.*

DIVISION.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
	SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
	Light.	Heavy.	Light.	Heavy.			
Division 1, . . . . .	1,923	1,387	247	878	1,056	5,844	369
Division 2, . . . . .	884	334	32	247	267	1,282	44
Division 3, . . . . .	2,568	2,707	166	1,250	2,875	13,839	835
Division 4, . . . . .	3,431	2,850	69	836	2,357	11,107	516
Totals, . . . . .	8,806	7,278	514	3,211	6,555	32,072	1,764
Night traffic, . . . . .	42	125	4	86	38	133	27
Metropolitan Park Commission, . . . . .	516	470	34	327	1,829	8,036	189
Boston Park Department, . . . . .	319	308	94	311	893	3,758	369

7 P.M. to 7 A.M. — Concluded.

## BOSTON PARK DEPARTMENT.

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
143	76	219	1,715	1,934	7	4	11	89	Prince and Pond streets, Jamaica Plain.
128	247	375	2,634	3,009	4	8	12	88	Commonwealth Avenue, opposite Hotel Somerset.
142	296	438	671	1,109	13	27	40	60	Washington Street and Columbia Road.
413	619	1,032	5,020	6,052	-	-	-	-	

## Recapitulation.

TOTALS.					PERCENTAGES.				AVERAGE OF ALL STATIONS.					Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	HORSE-DRAWN.			Automobiles.	All Kinds.	
Light.	Heavy.	All.			Light.	Heavy.	All.		Light.	Heavy.	All.			
2,170	2,265	4,435	7,269	11,704	18	20	38	62	57	60	117	191	308	38 stations.
916	581	1,497	1,593	3,090	29	19	48	52	61	39	100	106	206	15 stations.
2,734	3,957	6,691	17,549	24,240	11	16	27	73	52	74	126	331	457	53 stations.
3,500	3,686	7,186	13,980	21,166	17	17	34	66	72	75	147	285	432	49 stations.
9,320	10,489	19,809	40,391	60,200	16	17	33	67	60	68	128	260	388	155 stations.
46	211	257	198	455	10	46	56	44	15	70	85	66	151	3 stations.
550	797	1,347	10,054	11,401	5	7	12	88	69	100	169	1,256	1,425	8 stations.
413	619	1,032	5,020	6,052	7	10	17	83	138	206	344	1,673	2,017	3 stations.

*Daily Averages from Traffic Records taken Fourteen Hours*

## DIVISION 1.

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
101	Clarksburg, . . . .	62	66	4	51	10	47	3
102	Williamstown, . . . .	54	56	8	26	31	136	8
103A	Williamstown, . . . .	27	12	3	10	3	15	-
103B	Williamstown, . . . .	34	15	4	13	6	40	1
104	Lanesborough, . . . .	14	5	2	6	2	25	-
105	Cheshire, . . . .	26	18	2	21	16	115	6
106	Windsor, . . . .	31	7	5	15	3	16	-
107A	Pittsfield, . . . .	28	6	4	18	4	36	2
107B	Pittsfield, . . . .	32	8	12	31	17	178	10
108	Pittsfield, . . . .	43	27	16	23	72	376	25
109A	Lenox, . . . .	67	28	22	50	9	183	12
109B	Lenox, . . . .	101	39	41	13	6	260	15
110A	Stockbridge, . . . .	45	52	14	44	23	106	5
110B	Stockbridge, . . . .	34	27	13	46	20	181	9
111A	East Lee, . . . .	61	23	11	31	26	95	4
111B	East Lee, . . . .	62	22	8	40	32	148	9
112A	Egremont, . . . .	17	3	4	3	6	22	1
112B	Egremont, . . . .	25	4	2	11	10	44	1
112c	Egremont, . . . .	35	15	5	15	12	77	1
113	Huntington, . . . .	43	24	4	33	74	95	2
114	West Springfield, . . . .	26	31	1	16	90	280	13
115A	South Hadley, . . . .	53	131	6	93	23	67	15
115B	South Hadley, . . . .	68	142	2	43	8	33	6
116	Chicopee, . . . .	27	132	6	79	53	143	43
117	Agawam, . . . .	29	34	2	25	41	169	13
118	Longmeadow, . . . .	45	59	1	27	85	300	26
119	North Wilbraham, . . . .	15	24	1	8	62	293	12
120	Brimfield, . . . .	19	5	2	9	6	31	1

*Each Day for One Week, beginning Oct. 13, 1912, at 7 A.M.*

## DIVISION 1.

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
66	117	183	60	243	27	48	75	25	Near Red bridge.
62	82	144	175	319	19	26	45	55	Near North Adams line.
30	22	52	18	70	43	31	74	26	Idlewild, Hancock Road.
38	28	56	47	113	34	24	58	42	Idlewild, New Ashford Road.
16	11	27	27	54	30	20	50	50	On New Ashford Road.
28	39	67	137	204	14	19	33	67	Near center.
36	22	58	19	77	47	29	76	24	Post office.
32	24	56	42	98	33	24	57	43	Richmond Road at junction.
44	39	83	205	288	15	14	29	71	Lebanon Road at junction.
59	50	109	473	582	10	9	19	81	Near Lenox line.
89	78	167	204	371	24	21	45	55	Lee Road at junction.
142	52	194	281	475	30	11	41	59	Stockbridge Road at junction.
59	96	155	134	289	20	33	53	47	Lee Road at junction.
47	73	120	210	330	14	22	36	64	Lenox Road at junction.
72	54	126	125	251	29	22	51	49	Stockbridge Road at junction.
70	62	132	189	321	22	19	41	59	Lee Ladder Road at junction.
21	6	27	29	56	38	11	49	51	Hillsdale Road, corner Hillsdale and Sheffield roads.
27	15	42	55	97	28	15	43	57	Sheffield Road, corner Hillsdale and Sheffield roads.
40	30	70	90	160	25	19	44	56	Great Barrington Road, corner Hillsdale and Sheffield roads.
47	57	104	171	275	17	21	38	62	Near Phinney's stable.
27	47	74	383	457	6	10	16	84	Between underpasses.
59	224	283	105	388	15	58	73	27	Hadley Road at junction.
70	185	255	47	302	23	61	84	16	Granby Road at junction.
33	211	244	239	483	7	44	51	49	Near Bosch-Magneto Works.
31	59	90	223	313	10	19	29	71	Near Whitman's corner.
46	86	132	411	543	8	15	23	77	River Road to Hartford.
16	32	48	367	415	4	8	12	88	Near Springfield line.
21	14	35	38	73	29	19	48	52	Palmer Road at junction.

*Daily Averages from Traffic*DIVISION 1—*Concluded.*

Station Number.	TOWN—CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
121	Ware, . . . . .	23	17	1	8	7	43	1
122	Warren, . . . . .	39	38	1	9	56	218	5
123A	Brookfield, . . . . .	19	9	1	7	1	18	1
123C	Brookfield, . . . . .	21	13	1	10	14	258	7
124	Charlton, . . . . .	27	10	1	6	7	22	3
125	Auburn, . . . . .	93	109	11	102	9	183	16
126	Paxton, . . . . .	125	77	20	69	34	151	8
127	Holden, . . . . .	98	76	2	30	46	127	11
128	Great Barrington, . . . . .	52	34	26	76	21	50	—
129	Holyoke, . . . . .	13	15	1	11	52	232	12
	Totals, . . . . .	1,633	1,413	270	1,128	997	4,813	307

## DIVISION 2.

201A	Florida, . . . . .	8	6	1	9	3	5	—
201B	Florida, . . . . .	9	11	1	7	1	2	—
202A	Charlemont, . . . . .	3	1	—	—	—	1	7
202B	Charlemont, . . . . .	20	8	—	18	1	1	—
203	Hatfield, . . . . .	29	10	2	27	17	119	5
204A	Deerfield, . . . . .	230	130	27	323	99	265	12
204B	Deerfield, . . . . .	191	111	30	273	84	234	8
205A	Bernardston, . . . . .	57	21	2	10	10	66	3
205B	Bernardston, . . . . .	72	17	3	18	16	102	5
206	Orange, . . . . .	73	38	10	45	46	138	6
207A	Petersham, . . . . .	42	8	2	4	3	5	1
207B	Petersham, . . . . .	46	9	1	18	4	37	4
208	Westminster, . . . . .	21	9	6	10	18	133	3
209	Fitchburg, . . . . .	17	6	4	7	9	35	—
210	Ashby, . . . . .	60	19	6	17	11	58	4
	Totals, . . . . .	878	404	95	786	322	1,201	58



Records, etc. — Continued.

DIVISION 1—*Concluded.*

TOTALS.					PERCENTAGES.					Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.		
Light.	Heavy.	All.			Light.	Heavy.	All.			
24	25	49	51	100	24	25	49	51	Southwest end 1910 State highway.	
40	47	87	279	366	11	13	24	76	Between Warren and West Warren.	
20	16	36	20	56	31	25	56	44	North Brookfield Road at junction.	
22	23	45	279	324	7	7	14	86	Lester Road at junction.	
28	16	44	32	76	37	21	58	42	Point east of post office.	
104	211	315	208	523	20	40	60	40	Near Worcester line.	
145	146	291	193	484	30	30	60	40	East of post office.	
100	106	206	184	390	26	27	53	47	Near post office.	
78	110	188	71	259	30	42	72	28	Near east end State highway.	
14	26	40	296	336	4	8	12	88	Smith's Ferry Road at street car crossing.	
1,903	2,541	4,444	6,117	10,561	-	-	-	-		

## DIVISION 2.

9	15	24	8	32	28	47	75	25	Near Hoosac Tunnel, to get travel over mountain.
10	18	28	3	31	33	58	91	9	Near Hoosac Tunnel to get travel to Monroe bridge.
3	1	4	8	12	25	10	35	65	Zoar's bridge near Hoosac Tunnel Road.
20	26	46	2	48	42	54	96	4	Near Zoar's bridge, Rowe Road.
31	37	68	141	209	15	18	33	67	Select for through travel.
257	453	710	376	1,086	23	42	65	35	Sunderland Road at junction.
221	384	605	326	931	24	41	65	35	River Road (south) at junction.
59	31	90	79	169	35	18	53	47	Northfield Road at junction.
75	35	110	123	233	32	15	47	53	Greenfield Road at junction.
83	83	166	190	356	23	23	46	54	Near Erving line.
44	12	56	9	65	68	18	86	14	Town hall, road by Gaston's.
47	27	74	45	119	39	23	62	38	Town hall, Barre Road.
27	19	46	154	200	14	9	23	77	Near Fitchburg.
21	13	34	44	78	27	17	44	56	Ashburnham Road, near Westminster line.
66	36	102	73	175	38	21	59	41	West of village.
973	1,190	2,163	1,531	3,744	—	—	—	—	

*Daily Averages from Traffic*

## DIVISION 3.

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
301	Franklin, . . . . .	30	23	2	19	34	44	1
302	Uxbridge, . . . . .	34	40	7	42	47	179	18
303	Sutton, . . . . .	98	31	2	8	2	12	5
304A	Grafton, . . . . .	34	42	1	6	12	47	5
304B	Grafton, . . . . .	41	60	1	8	15	65	4
305	Holliston, . . . . .	23	19	1	11	10	74	7
306	Natick, . . . . .	22	36	3	34	57	315	18
307A	Wayland, . . . . .	66	28	—	55	28	74	1
307B	Wayland, . . . . .	56	42	—	21	80	388	10
308	Ashland, . . . . .	29	14	—	4	11	17	1
309	Southborough, . . . . .	15	11	—	6	15	55	4
310	Shrewsbury, . . . . .	60	54	7	38	68	399	19
311	West Boylston, . . . . .	52	48	—	20	43	185	9
312	Leominster, . . . . .	38	24	1	15	19	86	5
313A	Ayer, . . . . .	85	28	2	10	23	56	5
313B	Ayer, . . . . .	33	17	1	15	10	40	2
314A	Concord, . . . . .	7	11	—	4	4	22	—
314B	Concord, . . . . .	20	12	1	8	51	210	27
315	Lexington, . . . . .	42	51	1	42	49	204	49
316	Chelmsford, . . . . .	53	32	1	17	17	46	5
317	Chelmsford, . . . . .	56	68	5	26	52	193	3
318	Lowell, . . . . .	13	8	1	3	47	194	7
319	Tyngsborough, . . . . .	36	20	—	4	44	236	4
320	Tewksbury, . . . . .	58	28	4	12	50	182	17
321	Andover, . . . . .	8	10	1	6	74	395	13
322	Andover (north), . . . . .	104	128	3	25	59	324	39
323	Methuen, . . . . .	26	53	—	11	29	104	16
324	West Newbury, . . . . .	123	86	4	48	15	221	11
325	Amesbury, . . . . .	24	25	1	7	24	115	7
326A	Salisbury Center, . . . . .	65	59	1	22	23	149	4
326B	Salisbury Center, . . . . .	38	45	—	9	6	35	1
327	Rowley, . . . . .	62	47	4	14	40	179	6

*Records, etc.* — Continued.

## DIVISION 3.

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
32	42	74	79	153	21	27	48	52	Near Unionville.
41	82	123	244	367	11	22	33	67	Near Blackstone line.
100	39	139	19	158	63	25	88	12	Near Manchaug.
35	48	83	64	147	24	33	57	43	Grafton Road (north) at junction.
42	77	119	84	203	21	38	59	41	Millbury Road at junction.
24	30	54	91	145	16	21	37	63	Near Milford line.
25	70	95	390	485	5	14	19	81	Near Wellesley line.
66	83	149	103	252	26	33	59	41	Cochituate Road at junction.
56	63	119	478	597	9	11	20	80	Weston Road at junction.
29	18	47	29	76	38	24	62	38	Near Southborough line.
15	17	32	74	106	14	16	30	70	Near Westborough line.
67	92	159	486	645	10	14	24	76	West of center.
52	68	120	237	357	15	19	34	66	Near north end State highway.
39	39	78	110	188	21	21	42	58	Near north end State highway.
87	38	125	84	209	42	18	60	40	Groton Road at junction.
34	32	66	52	118	29	27	56	44	North Shirley road at junction.
7	15	22	26	48	6	12	18	82	Harvard Road at junction.
21	20	41	288	329	6	6	12	88	Ayer Road at junction.
43	93	136	302	438	10	21	31	69	On Concord Road.
54	49	103	68	171	34	29	63	37	West of Chelmsford Center.
61	94	155	248	403	15	24	39	61	North at Lowell line.
14	11	25	248	273	5	4	9	91	Near Tyngsborough line.
36	24	60	284	344	10	7	17	83	North of center.
62	40	102	249	351	18	11	29	71	Near center.
9	16	25	482	507	2	3	5	95	Near North Reading line.
107	153	260	422	682	16	22	38	62	Just south of lower road to Lowell.
26	64	90	149	239	11	27	38	62	Near Haverhill line.
127	134	261	247	498	25	27	52	48	Near post office.
25	32	57	146	203	12	16	28	72	Near Merrimac line.
66	81	147	176	323	20	25	45	55	New Hampshire Road at junction.
38	54	92	42	134	28	40	68	32	Amesbury Road at junction.
66	61	127	225	352	19	17	36	64	Near Burke's corner.

*Daily Averages from Traffic*DIVISION 3 — *Concluded.*

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
328	Hamilton, . . . . .	75	51	1	29	58	225	33
329A	Essex, . . . . .	29	30	—	8	16	29	4
329B	Essex, . . . . .	34	31	1	7	15	24	2
329c	Essex, . . . . .	33	25	2	11	17	43	3
330	Gloucester, . . . . .	28	27	2	7	58	167	37
331	Beverly, . . . . .	271	132	30	100	152	450	67
332A	Beverly, . . . . .	25	43	10	32	30	97	17
332B	Beverly, . . . . .	62	113	6	134	75	252	55
333	Topsfield, . . . . .	11	10	1	9	7	58	—
334	Middleton, . . . . .	45	32	—	9	8	44	2
335	Salem, . . . . .	27	54	4	22	117	467	50
336A	Lynnfield, . . . . .	26	23	—	2	22	178	5
336B	Lynnfield, . . . . .	39	33	2	7	21	150	11
337A	Stoneham, . . . . .	33	57	—	17	98	565	13
337B	Stoneham, . . . . .	13	19	—	10	32	108	2
338	Woburn, . . . . .	26	30	1	17	26	195	2
339	Lynn, . . . . .	15	14	1	13	123	910	13
340	Saugus, . . . . .	27	182	4	70	14	44	85
341	Chelsea, . . . . .	25	141	5	84	24	31	48
342	Somerville, . . . . .	52	185	—	186	69	144	53
343	Boston, . . . . .	34	74	5	42	59	256	43
344	Weston, . . . . .	167	98	5	59	115	533	30
345	Natick (west), . . . . .	41	61	1	22	42	240	20
346	Watertown, . . . . .	52	180	4	62	94	243	36
	Totals, . . . . .	2,641	2,854	140	1,529	2,350	10,298	954

## DIVISION 4.

401A	Wrentham, . . . . .	58	48	1	22	46	214	11
401B	Wrentham, . . . . .	19	12	1	9	12	252	7
401c	Wrentham, . . . . .	61	44	2	18	36	114	4
401D	Wrentham, . . . . .	59	45	3	17	8	70	3

Records, etc. — Continued.

DIVISION 3 — *Concluded.*

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
76	80	156	316	472	16	17	33	67	Ipswich line.
29	38	67	49	116	25	33	58	42	Ipswich Road at junction.
35	38	73	41	114	31	33	64	36	Hamilton Road at junction.
35	36	71	63	134	26	26	52	48	Gloucester Road at junction.
30	34	64	262	326	9	10	19	81	At Magnolia Avenue.
301	232	533	669	1,202	25	19	44	56	Prides and Haskell streets..
35	75	110	144	254	14	29	43	57	Dodge Street crossing.
68	247	315	382	697	10	35	45	55	South of Dodge Street.
12	19	31	65	96	12	18	30	70	Turnpike at Small-town Road.
45	41	86	54	140	32	29	61	39	West of center.
31	76	107	634	741	4	10	14	86	Loring Avenue near pumping station.
26	25	51	205	256	10	10	20	80	Turnpike and Wakefield Road (south).
41	40	81	182	263	16	15	31	69	Turnpike and Wakefield Road (east).
33	74	107	676	783	4	9	13	87	Reading Road at junction.
13	29	42	142	184	7	16	23	77	Wakefield Road at junction.
27	47	74	223	297	9	16	25	75	Near Winchester line.
16	27	43	1,046	1,089	1	3	4	96	Saugus River bridge.
31	252	283	143	426	7	59	66	34	Revere-Saugus Road.
30	225	255	103	358	8	63	71	29	East Boston end.
52	371	423	266	689	8	54	62	38	Somerville-Medford Road.
39	116	155	358	513	8	22	30	70	Grove Street.
172	157	329	678	1,007	17	16	33	67	Waltham-Marlborough Road.
42	83	125	302	427	10	19	29	71	Framingham Road.
56	242	298	373	671	8	36	44	56	Near east end Watertown Road.
2,781	4,383	7,164	13,602	20,776	-	-	-	-	.

## DIVISION 4.

59	70	129	271	400	15	17	32	68	Boston Road at junction of Franklin Road.
20	21	41	271	312	6½	6½	13	87	Providence Road at junction of Foxborough Road.
63	62	125	154	279	23	23	46	54	Franklin Road at junction of Boston and Providence Road.
62	62	124	81	205	30	30	60	40	Foxborough Road at junction of Providence Road.

*Daily Averages from Traffic*DIVISION 4 — *Continued.*

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
402	Westwood, . . . . .	27	55	1	13	50	359	30
403	Quincy, . . . . .	37	242	-	137	68	239	42
404	Cohasset, . . . . .	62	47	5	17	39	170	12
405A	Weymouth, . . . . .	28	25	1	24	17	65	10
405B	Weymouth, . . . . .	28	21	1	20	27	73	11
406A	Hanover, . . . . .	62	15	6	16	24	84	7
406B	Hanover, . . . . .	94	29	-	7	12	41	1
406C	Hanover, . . . . .	72	22	7	14	22	93	7
406D	Hanover, . . . . .	184	55	-	23	27	141	4
407	Duxbury, . . . . .	41	22	1	8	14	76	7
408A	Whitman, . . . . .	38	80	1	22	21	86	13
408B	Whitman, . . . . .	39	78	2	71	24	71	6
409A	Easton, . . . . .	24	34	1	16	26	121	14
409B	Easton, . . . . .	43	51	1	22	46	251	23
410	Taunton, . . . . .	49	72	1	7	30	150	8
411	Dighton, . . . . .	55	90	1	23	37	134	11
412	Swansea, . . . . .	53	67	6	20	23	105	6
413A	Somerset, . . . . .	135	221	2	24	49	221	23
413B	Somerset, . . . . .	65	112	2	13	42	144	9
413C	Somerset, . . . . .	137	236	2	47	54	184	10
414	Dartmouth, . . . . .	150	84	16	67	34	221	25
415	Freetown, . . . . .	15	19	1	12	18	79	4
416	Bridgewater, . . . . .	47	69	2	19	32	143	10
417	Middleborough, . . . . .	57	71	-	19	25	152	3
418A	Plymouth, . . . . .	1	1	-	-	1	12	1
418B	Plymouth, . . . . .	8	6	-	4	3	19	2
419A	Marion, . . . . .	62	50	8	28	49	156	15
419B	Marion, . . . . .	38	39	-	22	16	41	4
419C	Marion, . . . . .	39	34	5	18	36	108	14
419D	Marion, . . . . .	11	16	-	11	4	7	1
420A	South Bourne, . . . . .	44	28	2	40	27	86	7
420B	Bourne, . . . . .	6	2	-	2	13	51	1

Records, etc. — Continued.

## DIVISION 4—Continued.

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
23	68	96	439	535	5	13	18	82	Providence Turnpike.
37	379	416	349	765	5	50	55	45	West of Fore River.
67	64	131	221	352	19	18	37	63	West of post office.
29	49	78	92	170	17	29	46	54	Washington Street, junction Main Street.
29	41	70	111	181	16	23	39	61	Main Street, junction Washington Street.
68	31	99	115	214	32	14	46	54	Rockland Road at junction.
94	36	130	54	184	51	20	71	29	Norwell Road at junction.
79	36	115	122	237	33	15	48	52	Boston Road at junction.
184	78	262	172	434	42	18	60	40	Pembroke Road at junction.
42	30	72	97	169	26	19	45	55	Near Hound Brook.
39	102	141	120	261	15	39	54	46	Brockton Road at junction High Street.
41	149	190	101	291	14	51	65	35	Abington Road at junction.
25	50	75	161	236	11	21	32	68	Brockton Road at Turnpike and West.
44	73	117	320	437	10	17	27	73	Stoughton Road at Turnpike and West.
50	79	129	188	317	16	25	41	59	Near Westville.
56	113	169	182	351	16	32	48	52	Near Taunton line.
59	87	146	134	280	21	31	52	48	Near center.
137	245	382	293	675	20	36	56	44	Brightman Street Bridge Road.
67	125	192	195	387	17	32	49	51	Taunton-Somerset Road near Brightman bridge.
139	283	422	248	670	21	41	62	38	Fall River and Providence Road near Slade's Ferry bridge.
166	151	317	280	597	28	25	53	47	Smith's Mills village.
16	31	47	101	148	11	21	32	68	Near Webb's corner.
49	88	137	185	322	15	27	42	58	South end village.
57	90	147	180	327	17	28	45	55	Road to Wareham near Borden Hill.
1	1	2	14	16	6	6	12	88	Sagamore Road at junction.
8	10	18	24	42	19	24	43	57	Bournedale Road at junction.
70	78	148	220	368	19	21	40	60	Corner Wareham and Mattapoisett roads.
38	61	99	61	160	24	38	62	38	Rochester Road, near depot.
44	52	96	158	254	17	21	38	62	Wareham Road at junction Mattapoisett Road.
11	27	38	12	50	22	54	76	24	Mattapoisett Road near depot.
46	68	114	120	234	20	29	49	51	Falmouth Road at junction near village.
6	4	10	65	75	8	5	13	87	Sagamore Road at junction.

*Daily Averages from Traffic*DIVISION 4 — *Concluded.*

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
421	Falmouth, . . . . .	67	38	1	20	21	78	3
422	Sandwich, . . . . .	34	13	—	4	8	68	2
423A	Barnstable, . . . . .	24	21	1	13	4	34	4
423B	Barnstable, . . . . .	21	5	—	1	10	29	1
424	Barnstable, . . . . .	189	186	2	10	93	145	17
425	Yarmouth, . . . . .	97	60	1	3	24	116	2
426	Harwich, . . . . .	62	40	—	3	25	71	1
427A	Orleans, . . . . .	64	64	—	10	15	61	1
427B	Orleans, . . . . .	128	137	—	14	23	62	1
428	Wellfleet, . . . . .	15	15	1	5	5	30	—
429	Seekonk (south), . . . . .	47	79	1	74	32	132	31
430	Attleborough (west), . . . . .	54	92	1	55	73	449	49
431	Brockton (south), . . . . .	52	75	3	23	69	165	39
	Totals, . . . . .	2,802	2,967	93	1,087	1,414	5,973	517

*Night Traffic,*

## MASSACHUSETTS HIGHWAY COMMISSION.

315	Lexington, . . . . .	10	17	4	14	7	46	6
341	Chelsea, . . . . .	3	25	1	14	2	4	4
342	Somerville, . . . . .	15	72	1	73	14	48	8
343	Boston, . . . . .	8	14	—	3	9	54	6
346	Watertown, . . . . .	11	54	—	4	12	51	9
	Totals, . . . . .	47	182	6	108	44	203	33

## METROPOLITAN PARK COMMISSION.

1	Lynn, . . . . .	60	13	5	3	130	602	5
2	Revere, . . . . .	15	14	1	13	124	1,017	13
3	Brighton District, Boston, . . . . .	154	5	1	1	38	117	—
4	Somerville, . . . . .	18	1	2	—	116	568	—
5	Medford, . . . . .	22	2	1	—	75	322	—
6	Somerville, . . . . .	74	189	12	146	320	1,548	50
7	Milton, . . . . .	237	254	7	137	491	1,304	139
8	Medford, . . . . .	23	2	1	—	260	973	151
	Totals, . . . . .	603	480	30	300	1,554	6,451	358



*Records, etc. — Concluded.*DIVISION 4 — *Concluded.*

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
68	58	126	102	228	30	25	55	45	Near West Falmouth post office.
34	17	51	78	129	26	13	39	61	Near East Sandwich village.
25	34	59	42	101	25	34	59	41	Junction State and Cotuit roads, Mar- stons Mills.
21	6	27	40	67	31	9	40	60	Junction State and Cotuit roads to Osterville and Hyannis.
191	196	387	255	642	30	31	61	39	Hyannis village.
98	63	161	142	303	32	21	53	47	Yarmouthport.
62	43	105	97	202	31	21	52	48	Near Harwichport.
64	74	138	77	215	30	34	64	36	Brewster Road at junction.
128	151	279	86	365	35	41	76	24	Chatham Road at junction.
16	20	36	35	71	23	28	51	49	Near Eastham line.
48	153	201	195	396	12	39	51	49	One half mile from north end.
55	147	202	571	773	7	19	26	74	Point where electrics come into road.
55	98	153	273	426	13	23	36	64	Junction of Main and Hayward ave- nues.
2,895	4,054	6,949	2,904	14,853	-	-	-	-	

7 P.M. to 7 A.M.

## MASSACHUSETTS HIGHWAY COMMISSION.

14	31	45	59	104	13	30	43	57	On Concord Road.
4	39	43	10	53	8	74	82	18	East Boston end.
16	145	161	70	231	7	63	70	30	Somerville-Medford Road.
8	17	25	69	94	9	18	27	73	Grove Street.
11	58	69	72	141	8	41	49	51	Near east end of Watertown Road.
53	290	343	280	623	-	-	-	-	

## METROPOLITAN PARK COMMISSION.

65	16	81	737	818	8	2	10	90	Prescott Place.
16	27	43	1,154	1,197	1	2	3	97	Saugus River bridge.
155	6	161	155	316	49	2	51	49	Metropolitan Park Commission, Sol- dier's Field Road.
20	1	21	684	705	3	-	3	97	Mystic Valley Parkway, West Medford line.
23	2	25	397	422	6	-	6	94	Main Street, Medford, entrance to Mystic Valley parkway.
86	335	421	1,918	2,339	4	14	18	82	Wellington bridge.
244	391	635	1,934	2,569	10	15	25	75	Blue Hills parkway, Mattapan bridge.
24	2	26	1,384	1,410	2	-	2	98	House on Malden River bridge.
633	780	1,413	8,363	9,776	-	-	-	-	

*Night Traffic,*

BOSTON PARK DEPARTMENT (OCTOBER 15 TO OCTOBER 21).

Station Number.	TOWN — CITY.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
		SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
		Light.	Heavy.	Light.	Heavy.			
1	Boston, . . . . .	135	51	25	16	261	1,435	19
2	Boston, . . . . .	471	122	146	67	863	290	612
3	Boston, . . . . .	110	277	46	122	155	622	90
	Totals, . . . . .	716	450	217	205	1,279	2,347	721

## SWAMPSCOTT, MASS.

Swampscott, . . . . .	139	270	7	60	207	499	46
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*Recapitulation.*

DIVISION.	HORSE-DRAWN VEHICLES.				AUTOMOBILES.		
	SINGLE HORSE.		TWO OR MORE HORSE.		Runabouts.	Touring Cars and Wagons.	Trucks and Omnibuses.
	Light.	Heavy.	Light.	Heavy.			
Division 1, . . . . .	1,633	1,413	270	1,128	997	4,813	307
Division 2, . . . . .	878	404	95	786	322	1,201	58
Division 3, . . . . .	2,641	2,854	140	1,529	2,350	10,298	954
Division 4, . . . . .	2,802	2,967	93	1,087	1,414	5,973	517
Totals, . . . . .	7,954	7,638	598	4,530	5,083	22,285	1,836
Night traffic, . . . . .	47	182	6	108	44	203	33
Metropolitan Park Commission, . . . . .	603	480	30	300	1,554	6,451	358
Boston Park Department, . . . . .	716	450	217	205	1,279	2,347	721
Swampscott, . . . . .	139	270	7	60	207	499	46

7 P.M. to 7 A.M.—Concluded.

BOSTON PARK DEPARTMENT (OCTOBER 15 TO OCTOBER 21).

TOTALS.					PERCENTAGES.				Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	
Light.	Heavy.	All.			Light.	Heavy.	All.		
160	67	227			1,715	1,942	8		
617	189	806	1,765	2,571	24	7	31	69	
156	399	555	867	1,422	11	28	39	61	
933	655	1,583	4,347	5,935	-	-	-	-	

Corner Pond and Prince streets, Jamaica Plain.  
Hotel Somerset, Commonwealth Avenue and Charlesgate (east).  
Columbia Road and Washington Street.

## SWAMPSCOTT, MASS.

146	330	476	752	1,228	12	27	39	61	Bradford Café, Humphrey Street.
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## Recapitulation.

TOTALS.					PERCENTAGES.				AVERAGE OF ALL STATIONS.					Remarks.
HORSE-DRAWN.			Automobiles.	All Kinds.	HORSE-DRAWN.			Automobiles.	HORSE-DRAWN.			Automobiles.	All Kinds.	
Light.	Heavy.	All.			Light.	Heavy.	All.		Light.	Heavy.	All.			
1,903	2,541	4,444	6,117	10,561	18	24	42	58	50	67	117	161	278	38 stations.
973	1,190	2,163	1,581	3,744	26	32	58	42	65	79	144	106	250	15 stations.
2,781	4,383	7,164	13,602	20,766	13	21	34	66	50	78	128	243	371	56 stations.
2,895	4,054	6,949	7,904	14,853	20	27	47	53	59	83	142	161	303	49 stations.
8,552	12,168	20,720	29,204	49,924	17	24	41	59	54	77	131	185	316	158 stations.
53	290	343	280	623	8	47	55	45	11	58	69	56	125	5 stations.
633	780	1,413	8,363	9,776	6	8	14	86	79	98	177	1,045	1,222	8 stations.
933	655	1,588	4,347	5,935	16	11	27	73	311	218	529	1,449	1,978	3 stations.
146	330	476	752	1,228	12	27	39	61	-	-	-	-	-	1 station.

## APPENDIX M.

### APPROPRIATIONS.

#### *Appropriations for the Construction and Repair of State Highways.*

1894, chapter 497, section 8, . . . . .	\$300,000 00
1895, chapter 347, section 3, . . . . .	400,000 00
1896, chapter 481, section 3, . . . . .	600,000 00
1897, chapter 340, section 1, . . . . .	800,000 00
1898, chapter 539, section 1, . . . . .	400,000 00
1899, chapter 396, section 1, . . . . .	500,000 00
1900, chapter 442, section 1, . . . . .	500,000 00
1901, chapter 269, section 1, . . . . .	500,000 00
1902, chapter 246, section 1, . . . . .	500,000 00
1903, chapter 280, section 1, . . . . .	2,250,000 00 <sup>1</sup>
1907, chapter 446, section 1, . . . . .	2,500,000 00 <sup>1</sup>
1912, chapter 704, section 1, . . . . .	5,000,000 00 <sup>1</sup>
	\$14,250,000 00

#### *Appropriations for the Salaries and Expenses of the Commission, paid from the Treasury of the Commonwealth.*

1898, chapter 497, section 1, . . . . .	\$14,300 00
1899, chapter 367, section 1, . . . . .	28,500 00
1900, chapter 141, section 1, . . . . .	28,500 00
1901, chapter 451, section 1, . . . . .	33,750 00
1902, chapter 67, section 1, . . . . .	33,750 00
1903, chapters 14 and 485, section 1, . . . . .	43,950 00 <sup>2</sup>
1904, chapters 19 and 461, section 1, . . . . .	39,300 00 <sup>2</sup>
1905, chapters 36, 431 and 480, section 1, . . . . .	46,150 00 <sup>2</sup>
1906, chapters 36 and 140, section 1, . . . . .	49,514 14 <sup>2</sup>
1907, chapter 157, section 1, . . . . .	66,950 00 <sup>3</sup>
1908, chapter 212, section 1, . . . . .	76,300 00 <sup>3</sup>
1909, chapter 127, . . . . .	47,300 00 <sup>4</sup>
1910, chapter 139, . . . . .	56,250 00 <sup>4</sup>
1911, chapter 555, section 1, . . . . .	61,250 00 <sup>4</sup>
1912, chapter 287, section 1, . . . . .	61,500 00 <sup>4</sup>

<sup>1</sup> To cover expenses of construction for a period of five years.

<sup>2</sup> Includes expenses of automobile department.

<sup>3</sup> Includes expenses of moth suppression and automobile department in part.

<sup>4</sup> Includes expense of moth suppression.

*Appropriations for Maintenance, paid from the Treasury of the Commonwealth.*

1903, chapter 280, section 2, . . . . .	\$40,000 00
1904, chapter 316, section 1, . . . . .	50,000 00
1905, chapter 36, section 1, . . . . .	60,000 00
1906, chapter 36, section 1, . . . . .	64,166 66
1907, chapter 157, section 1, . . . . .	100,000 00
1908, chapters 212 and 657, section 1, . . . . .	150,000 00
1909, chapters 127 and 493, section 1, . . . . .	250,000 00
1910, chapter 139, section 1, . . . . .	200,000 00
1911, chapter 555, section 1, . . . . .	200,000 00
1912, chapter 287, section 1, . . . . .	200,000 00



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PART II.

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SEVENTH ANNUAL REPORT

OF THE

MASSACHUSETTS HIGHWAY COMMISSION,

FOR THE

FISCAL YEAR ENDING NOVEMBER 30, 1912,

ON

COMPANIES ENGAGED IN THE TRANSMISSION OF  
INTELLIGENCE BY ELECTRICITY.

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CHAPTER 433, ACTS OF 1906.

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## PART II.

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### ANNUAL REPORT OF THE MASSACHUSETTS HIGHWAY COMMISSION CONCERNING COM- PANIES ENGAGED IN THE TRANSMISSION OF INTELLIGENCE BY ELECTRICITY.

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There was only one formal hearing on telephone rates asked for or held during the year and that was in the county of Barnstable, the Legislature by chapter 67 of the Resolves of the year 1912 directing the commission to investigate and report upon certain matters therein set forth and fully covered in the report of this commission to the Legislature of last year. The report was as follows:—

*To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled.*

GENTLEMEN:—On April 25, 1912, a resolve which had been passed by the Senate and House of Representatives, entitled “Resolve to provide for an Investigation by the Massachusetts Highway Commission of the Rates charged and Service rendered in the County of Barnstable by the Southern Massachusetts Telephone Company,” was approved by His Excellency the Governor.

The commissioners, however, had no knowledge of the passage of this resolve until it was called to their attention at their meeting on May 8, 1912. It was therefore manifestly impossible for the commission to make any investigation or hold any public hearing in the county (which seemed necessary in fairness to the petitioners) in time to enable it to make its report on or before May 1, as directed.

The resolve provides “That the Massachusetts highway commission shall investigate whether the rates charged and the service rendered by the Southern Massachusetts Telephone Company in the county of Barnstable and especially the system of wire centers and zones under which said company operates, are properly applicable and suitable to the geographical character of the territory served by said company.

"The commission shall report to the general court not later than the first day of May in the current year."

After consultation with the petitioner for the resolve, a hearing was advertised in the principal newspapers in the county and was held in the court house at Barnstable on May 23, sessions being held in the morning and afternoon. There were some 20 persons present representing 4 towns. The commission was somewhat familiar with the situation in Barnstable County even before this hearing.

The county has a population of 27,000 and an area of 419 square miles, and comprises practically all of the territory known as Cape Cod. Many of the towns are small and have so few inhabitants that they have to be served by means of telephone exchanges located in other towns. There are large areas of land where there are few, if any, buildings, and the thickly settled portions are often separated by 4 miles or more of sparsely settled territory. It is true, as the petitioners claim, that many of the towns and settlements on Cape Cod are surrounded by water on two sides and, as there are no telephones on the water, they cannot communicate in that direction. For the same reason, however, the company receives no revenue from that source. In the main, the telephone company's subscribers in Barnstable County are mostly situated on the main roads running along the cape on the north and south sides. As is true in other seacoast sections of Massachusetts, most of the thickly settled parts are upon the shore. The commission can find nothing peculiar in the situation, as it appertains to all the seashore towns and cities in the State.

There are no zones, so called, established by the telephone company in this territory at the present time, simply telephone exchanges, and the rate which a subscriber pays for service merely gives him connection with the other subscribers in the same exchange. This situation, however, exists not only in Barnstable County, but in almost all the towns of the same size throughout the Commonwealth. It is true in most of the smaller towns, also, that the majority of the subscribers reside upon the main roads, and in very many towns, especially in the western part of the State, there are large areas of hills, woods, etc., where there are few or no inhabitants, and where the exchange is very small and the subscriber cannot, without paying a toll, talk with very many other people and only those located within his own exchange.

The rates in Barnstable County are the lowest in the telephone company's schedule, so-called group 8, and the commission finds that these are the regular rates which are in force in other like communities, and that the charges made to subscribers in Barnstable County are the same as are made uniformly throughout the State.

It appeared at the hearing that the charge made by the telephone company for mileage to subscribers who were beyond 2 miles from the exchange, from which place the mileage charge begins, except on multi-party lines, was insufficient to pay the actual cost of constructing

and maintaining the line, even if all the subscribers allowed on a particular line were secured. It appeared, moreover, that on the farmers' lines, where the mileage begins 6 miles from the exchange, the same is true, and, further, that these charges are made uniformly by all telephone companies, so far as the commission is aware. It appeared also that the total receipts, including tolls, collected in Barnstable County were not sufficient to pay for the cost of service and depreciation of plant, to say nothing of the interest on the \$450,000 of capital invested in that territory. This situation, however, is not unusual in sparsely settled territory.

There were several matters brought to the attention of the commission in regard to the needs of inhabitants of some of that territory, and also in regard to the charge made to certain town officers for official business, which the commission will consider further and where it may be possible that some improvement can be made.

As a result of a hearing held a few months ago the commission suggested to the company, and the company put in force, a 5-cent rate between the exchanges in Barnstable which were located more than 5 miles apart and where the charge was 10 cents, as is usual in other places. The commission felt that that was a fair thing to do when the exchanges were located in the same municipality.

For the foregoing reasons the commissioners are obliged to report that the rates charged and the service rendered by the Southern Massachusetts Telephone Company in the county of Barnstable and the system of wire centers and zones under which said company operates do not differ materially from those which exist in all the other parts of the State where there is sparsely settled territory, and where there are large areas of uninhabited land and the people reside mostly upon the main highways. The commission will, however, give further consideration to the matter and see if it is possible to make any further improvements in the condition of affairs in Barnstable County.

Respectfully submitted,

WM. D. SOHIER,

F. D. KEMP,

*Massachusetts Highway Commission.*

BOSTON, MASS., May 29, 1912.

#### DENNIS.

After this report was made, it having appeared both at a hearing held by the commission at its office and at the hearing given in Barnstable that certain telephone subscribers in the town of Dennis would secure more nearly the service they desired if they were connected with some other exchange, this matter was investigated.

The telephone company had a canvass made to ascertain what the wishes of the subscribers were.

It was found that all the subscribers located south of the railroad track except one would like to be connected with the Harwich exchange. The few subscribers who were located north of the tracks preferred to remain in the Dennis exchange.

We are informed that the subscribers south of the tracks were transferred to the Harwich exchange and the others were left in Dennis as they desired.

The Barnstable service was much improved this summer, a building having been erected and a switchboard installed.

The commission was requested to hold two conferences, one concerning certain matters in Lynnfield and the other certain matters in Lowell; at neither was the commission requested to take any action.

The individual complaints also have decreased. Those that were made either in person or by letter merely related to individual specific charges, such as lack of service or poor service. They were all called to the attention of the officers of the company, were looked into, the subscriber interviewed, and in almost every instance the complainant was satisfied and the defect or mistake rectified.

The conferences and complaints as to particular rates of service, of which there were so many during the last few years while the new rate schedules were being put into effect, have almost entirely ceased.

#### ORDER OF THE SENATE.

JAN. 17, 1912.

*Ordered*, That the Massachusetts Highway Commission furnish the Senate with the following information:—

Whether the public interest requires, and whether the revenues of the New England Telephone and Telegraph Company would permit, that the cost of service in the metropolitan district in any or all of the following classes of service be reduced?

*First*.—Of the unmeasured service rates of the so-called central district for (a) business or (b) residence.

*Second*.—Of the several classifications of measured service in the so-called central district for (a) business or (b) residence.

*Third*.—Of the various services in the suburban districts known as

classes E F G and H, unmeasured, (a) business (b) residence; measured, (c) business (d) residence.

*Fourth.*—Of the toll charges within radius of 8 miles for unmeasured service of (a) business or (b) residence, so that same shall conform to similar existing toll charges on measured service.

*Fifth.*—Of the toll charges for radius of over 8 miles, unmeasured, (a) business or (b) residence; measured, (c) business or (d) residence.

HENRY D. COOLIDGE,

*Clerk.*

A true copy. Attest:

(Signed) HENRY D. COOLIDGE,  
*Clerk of the Senate.*

FEB. 14, 1912.

*To the Honorable Senate of the Commonwealth of Massachusetts,  
State House, Boston, Mass.*

GENTLEMEN:—Your order of January 17, requesting the Massachusetts Highway Commission to furnish you with information as to whether the public interests require, and the revenues of the New England Telephone and Telegraph Company would permit, the cost of service in the metropolitan district, in any or all of the various classes of service, including toll charges, to be reduced, was duly received.

On the receipt of this order the commission requested its experts, Messrs. D. C. and William B. Jackson, to furnish certain information and data in regard to the present situation in that district, and it sends herewith a copy of their report on the various subjects.<sup>1</sup> The annexed tables contain statistics relative to the number of subscribers in the several classes of service in the central and suburban districts a year ago, when the majority of the subscribers were under the old schedule of rates, and in December, 1911, when quite a large majority of the subscribers were under the new schedule of rates.

#### FIVE YEARS' INVESTIGATION.

The question of telephone rates in the central and suburban districts has been under active discussion, and has been very carefully looked into by this commission and its experts during the past five years. As reported to the Legislature from time to time, and in accordance with the recommendation of this commission, a complete inventory of the property of the telephone company was made, and afterwards traffic studies and cost data were secured. A considerable length of time was necessarily consumed in the making of these studies, in order to secure reasonably accurate data. The commission is informed that the com-

<sup>1</sup> See Appendix A.

pany has spent several hundred thousand dollars in the preparation of the inventory and of the various statistics required.

#### EXPERTS EMPLOYED.

Four years ago the commission employed Messrs. D. C. and William B. Jackson for the purpose of making a study of telephone rates in this State, they having previously been employed by the city of Chicago for a similar purpose. Since that time they have also been employed by the government in England to assist in making a valuation of the National Telephone Company there, and they have been consulted by the Public Service Commission in Maryland and elsewhere. The commission has also employed Mr. A. R. Patterson, an expert accountant, with Stone & Webster, and, as a result of the various studies made, the commission in August, 1910, decided that it was fair that a reduction should be made in the gross revenue of the company collected throughout the central and suburban districts, also, what was much more important, viz., that a readjustment and revision of the rates charged to the various classes of subscribers in those districts ought to be made.

#### OLD RATES INEQUITABLE.

The commission found that the amount collected by the company from subscribers in some of the different classes varied from 6 to even 10 cents or more per call for some of the smaller users, and that some of the larger users were securing their calls at 1 cent each, or even less, while the gross amount collected by the company for every completed call made averaged a little under 3½ cents. This was manifestly unfair, and the schedule recommended by the commission was intended more nearly to equalize the rates among the various classes of subscribers, so that the larger users should no longer secure their service at the expense of the much larger number of smaller users. In the schedule recommended the commission attempted to equalize the amount collected from the different subscribers for each call made, so that each class of service would more nearly pay its proportionate part of the gross amount it was necessary for the company to collect. This was more necessary than any horizontal reduction, which would have merely perpetuated the existing inequalities.

#### GENERAL PRINCIPLES ADOPTED.

In attempting to work out a sound and logical basis for a schedule of telephone rates for the central and suburban territory, it seemed to the commission that the following fundamental propositions were perfectly clear.

That the district to be covered by a given telephone rate should be the territory generally used by the great majority of the subscribers therein, rather than a much larger territory, the greater portion of which is seldom used by the majority of subscribers.

That the company should collect its revenue for calls between more distant portions of the territory from those who make use of such service, rather than from those who use only local service, involving the use of a much smaller portion of the plant.

That the suburban exchanges have of necessity so much occasion for calling into Boston and *vice versa* that the 5-cent toll rate between the central and suburban exchanges should be extended to cover the greatest distance consistent with a well-balanced schedule and with fairness to the company.

That business service at least, except for essentially local service, should be placed on a measured basis; and

That so far as it is possible to do so, the rate schedule should be so made as to furnish telephone service to the small user at the lowest yearly charge that is fair and equitable, and, on that as a basis, adjusted to meet the requirements of the medium and larger user.

#### REDUCTIONS RECOMMENDED IN 1908.

In April, 1908, the commission recommended to the telephone company that the toll rate of 10 cents which was charged between the 7 exchanges in the central district and the 16 exchanges in the suburban district, within 5 miles of the center of the central district, should be cut in halves or reduced 5 cents. Two years later this toll rate was extended to include all exchanges located within 8 miles.

#### NEW RATE SCHEDULE FOR METROPOLITAN DISTRICT.

In the schedule of rates which the commission recommended in August, 1910, the rate per call, in the measured service class for one and two party lines, for a limited number of calls within an 8-mile radius, was reduced from 10 and 9 cents a call to 5 cents a call, the amount to be paid for the guaranteed minimum depending upon the district in which the telephone was located and whether it was a one, two or four party line, the subscriber being allowed the guaranteed number of calls at 5 cents each, and excess calls within the zone at 3 cents each. This practically cut the old rate in halves.

#### FURTHER REDUCTION RECOMMENDED IN DECEMBER, 1911.

The commission continued its studies of telephone rates and last December, believing that the company could afford, on the measured service, to extend the district over which calls could be made for the whole distance of 8 miles, it recommended to the company and the company agreed thereafter to include in the district covered by the measured service not only the zone in which the exchange was located, but any exchange located within 8 miles thereof, so that the rate charged would be 5 cents until the minimum number of calls had been exhausted, and then 3 cents each for all excess calls to metropolitan exchanges within 8 miles.

## RATES ELSEWHERE IN THE COMMONWEALTH.

The commission has also been studying rates elsewhere in Massachusetts, as it felt that some of the principles and benefits of the new schedule of rates adopted in the metropolitan district could fairly be adopted in other localities throughout the State.

## NEW RATE SCHEDULE APPROVED FOR THE COMMONWEALTH.

As set forth at length in its last annual report to the Legislature, the commission approved a new schedule of rates for the rest of the State, involving a reduction in the amount charged in various classes of service, and also a reduction from 10 to 5 cents for each call made to any exchange within 5 miles, with a 10-cent toll between 5 and 15 miles for a two-number call, and a 15-cent toll between 15 and 25 miles. The company began to put this new schedule into effect in some localities in July, 1911. It is estimated that this new schedule will result in a substantial reduction in the company's revenue.

## EFFECT OF NEW RATES NOT YET SHOWN IN REVENUE.

The full effect of the new schedules of rates is not yet shown in the revenue collected by the figures at hand. In fact, it will not be shown until substantially all of the subscribers, not only in the metropolitan district, but throughout the Commonwealth, have come under the new schedules, and until they have been in operation long enough to ascertain what may be shown by the traffic studies and collections thereunder.

While the new schedule of rates for the metropolitan district was recommended by the commission in August, 1910, to take effect in November of that year, the tables presented by Messrs. D. C. and William B. Jackson show that between December, 1910, and December, 1911, nearly 40,000 subscribers had taken rates under the new schedule, and that there are some 15,600 subscribers who still retain the obsolete rates, the company having extended until March, 1913, the time during which subscribers to the four and six party unlimited suburban residence rates could retain them. Within a few months some 3,400 unlimited business telephones, covering the whole metropolitan district, have been taken over onto the new rates.

## REDUCTION IN REVENUE UNDER NEW RATE SCHEDULES.

Messrs. D. C. and William B. Jackson report that the subscribers are paying on an average of something over \$3 less to the company for each telephone in the metropolitan district than they would be paying under the old schedule of rates. There are over 120,000 telephones in this district, and therefore it is evident that the revenue



of the company is from \$300,000 to \$400,000 less than it would have been under the old rates.

While this is a very large reduction in the revenue in this district, and is fully equal to the reduction in revenue that the commission anticipated under the new schedule, the commission believes that, with so many changes being made, it is possible, and even probable, that when the new schedule has been in full effect for a longer period of time, it will develop that there will be a considerable recoupment, both on account of the larger numbers of new subscribers who have come in and will come in under this more favorable schedule, but also because some of the very large users will, the commission believes, more nearly pay for the service which they use.

During the past year over 15,000 new subscribers have taken service under the new rates, which demonstrates that they were desired by a large number of people who formerly had no telephone.

A very large majority of all the telephones subscribed for are now on the measured-service basis. The fact that over 16,000 subscribers have taken the new two-party measured service in the suburban district since the new rates went into effect shows clearly that there was a demand for such a rate.

#### TELEPHONE RATES IN OTHER PLACES.

The commission has many statistics and tables in its office which show the rates in the metropolitan district as compared with the rates in many like communities in this country and in England, which it would be happy to show to any members of the Senate at any time if they care to look further into the matter.

#### TENDENCY IS TOWARD MEASURED RATES.

The general tendency both here and abroad is to adopt measured service, certainly for business and large users, and in many places, like New York, for all classes of service.

The Public Service Commission of Maryland recently made an investigation of telephone rates, and no later than January of this year recommended the discontinuance of the unlimited business rates and the adoption of measured service. It recommended a rate for the minimum number of calls of over 6 cents a call, instead of 5 cents, as adopted by this commission, and then a reduction to 4 cents, and occasionally, to very large users, a reduction to 3 cents or even less whenever they guaranteed to use a certain number of calls and to pay for them whether they were used or not.

#### FURTHER STUDIES NECESSARY.

The commission believes that a further study should be made of telephone rates, and that further readjustments and reductions should be made from time to time whenever they seem to be justified.

In August, 1911, the commission wrote to the telephone company requesting the securing of data as to traffic, collections, costs, etc., and requested its experts, Messrs. D. C. and William B. Jackson and Mr. A. R. Patterson to collect and classify such data, in order to enable the commission at some future time and from time to time to recommend such readjustments and reductions as were shown to be most equitable and desirable for the public.

Until these data are available, and until the new rates have been in effect sufficiently long, not only in the central and suburban districts, but throughout the State, to show fairly the results thereof, the commission feels that it would not be justified in saying that further readjustments or reductions could be made at the present time with fairness to the company or its subscribers.

Very respectfully,

MASSACHUSETTS HIGHWAY COMMISSION,

By F. I. BIELER, .

*Secretary.*

#### INCREASE IN THE NUMBER OF TELEPHONES.

As the commission predicted when it recommended a new schedule of rates for the central and suburban districts, and later when it recommended a new schedule for the whole State, the new rates have successfully met the needs of a large number of people in those districts by providing low rates within the means of the small user, and the number of telephones in use has largely increased in consequence.

Prof. D. C. Jackson reports that during the twelve months ending Nov. 30, 1912, the number of telephones operated in Massachusetts by the New England Telephone and Telegraph Company and the Southern Massachusetts Telephone Company increased 30,340, making the total number Nov. 30, 1912, 314,766, as against 284,426 in 1911.

The increase was over 10½ per cent. for the year.

It should be remembered that the uniform rates recommended for the whole State, outside the central and suburban districts, and making substantial reductions in many classes of service, are not yet fully in effect in all localities.

That these new rates providing one and two party service at lower rates in many localities are desired is shown by the fact that the number of subscribers to single-party lines increased

only a little over 3,000 in the year ending July 1, 1911, while it increased over 14,000 in the year ending July 1, 1912.

For the same twelve months to July 1, 1911, the increase in two-party line subscribers was nearly 4,700; in 1912 the increase was 17,000.

During the twelve months ending July 1, 1911, the *increase* in multi-party line subscribers was over 6,000; during the next twelve months the *decrease* in such subscribers was over 17,000.

This shows that there was a very large number of subscribers to multi-party lines who desired to avail themselves of the opportunity of securing better service at the reduced rates established by the new schedule. These rates have not yet been in effect long enough for any accurate report to be made as to their effect upon revenue and service, but the necessary accounts are being kept and studies will be made as soon as the necessary data are available.

#### CENTRAL AND SUBURBAN DISTRICT.

The only important change in the rates recommended in these districts during the year was on Dec. 28, 1911, when the commission sent the following letter to the president of the New England Telephone and Telegraph Company:—

DEC. 28, 1912.

JASPER N. KELLER, Esq., *President, New England Telephone and Telegraph Company, 50 Oliver Street, Boston, Mass.*

DEAR SIR:—On Aug. 17, 1911, the commission requested your company to act in co-operation with its experts in collecting certain data and statistics in order to show whether there were any inequalities in the schedule of rates in the Boston and suburban district as shown in actual operation.

While the commission realizes that there is not yet sufficient data to enable it or the telephone company to act intelligently upon many questions involved in the further adjustment of the schedule, it seems to the commission and its expert, Prof. D. C. Jackson, that there should at this time be sufficient data available to enable the company to pass upon one of the questions under consideration between the commission and the representatives of the telephone company, viz., the advisability of making the 3-cent charge for calls in excess of the guaranteed minimum, under the district-measured rate, applicable to all calls within 8 miles of a particular exchange as well as to local calls.

It seems to the commission that unless there is some conclusive reason to the contrary this change could properly be made at the present time, and would undoubtedly tend to eliminate an inequality in the present schedule.

For the Massachusetts Highway Commission,

F. I. BIELER,

*Secretary.*

The possibility of making this reduction had been under consideration for several months, and had been discussed by the officers of the company and the commission.

The company adopted the recommendation, and the reduction in rate went into effect Jan. 1, 1912.

This change resulted, of course, in a large reduction in the amount paid by the subscribers to local district-measured telephones, especially to all who made many calls outside of their district but to exchanges within 8 miles.

In effect it made all local district-measured rates cover all exchanges located within a radius of 8 miles, both in and out of Boston and elsewhere within the suburban district.

#### INCREASE IN TELEPHONES.

The increase in the number of telephones in the central and suburban districts where the new schedule has been in effect longer is greater than in the State as a whole.

The total increase in telephones for the metropolitan district was 15,938 for the year ending Nov. 30, 1912, or 11½ per cent.

The total number of telephones was 154,499 in this district Nov. 30, 1912, and there were less than 120,000 when the new schedule of rates for this district was recommended in 1910.

This increase was divided as follows:—

The telephones in the central district increased 5,464, and the increase in the suburban district was 10,474.

In 1910 the number of telephones increased 10,426 in the central and suburban districts; in 1912 it increased 15,938.

In 1909 there were 64,337 telephones in the suburban district; in 1912 there were 92,398 in the same district, an increase of nearly 45 per cent. in three years.

This again shows that the new schedule provides rates which the subscribers desire.

Certain rates seem to meet the needs of the particular community.

The new \$24 rate for the two-party measured service in the suburban district has already 23,538 users.

#### DECREASE IN COLLECTIONS PER TELEPHONE.

When recommending the new schedule of rates for the central and suburban districts in August, 1910, the commission stated that the preliminary studies indicated that the new rates would make a yearly reduction in the income collected by the company in the metropolitan district of from \$300,000 to \$400,000 a year. It is interesting to note how nearly this prediction has been verified.

The fairest way to determine this seems to be to divide the gross amount collected for a year in each district by the total number of telephones in the same district.

Prof. D. C. Jackson reports that the average amount collected per year for each telephone in the central district was \$1.10 less for each telephone in 1912 under the new rates than was collected in 1910 under the old rates.

In the suburban district the average amount collected per year for each telephone under the new rates in 1912 was \$3.51 less than was collected in 1910 under the old rates.

Multiplying this reduction per telephone by the number of telephones in the district to ascertain the amount of the reduction in revenue caused by the new rates gives the following results:—

First, taking the number of telephones in the central and suburban districts in 1910, \$334,000 less money was collected under the new schedule than would have been collected under the old schedule.

Second, taking the number of telephones in the same district Nov. 30, 1912, \$392,000 less money was collected under the new rates than would have been collected under the old rates for the same number of telephones. Many details as to subscribers, rates, etc., will be found in the report of the commission's experts, D. C. and W. B. Jackson, printed in Appendix B.

## INCREASES IN PLANT.

The books of the company show that very large additions have had to be made to the plant in order to provide for the improved service and to care for the increased number of subscribers.

The following table gives the amount spent for construction during the last four years in Maine, New Hampshire, Vermont and Massachusetts: —

1909,	.	.	.	.	.	.	.	\$1,953,028
1910,	.	.	.	.	.	.	.	3,310,787
1911,	.	.	.	.	.	.	.	5,060,963
1912,	.	.	.	.	.	.	.	5,461,069

The estimated expenditures for plant for the year 1913 is, according to the company's officers, \$4,490,000. About three-quarters of all this expenditure has been made in Massachusetts.

The increase in the plant account in 1912 was approximately 14 per cent., while the revenue only increased about 10 per cent.

This disparity will probably not continue after the unusual construction made necessary to provide the improved service under the new rates has been taken care of.

## EXTENSION OF TIME FOR ABOLITION OF MULTI-PARTY SERVICE.

The following correspondence fully covers this subject: —

NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY,  
BOSTON, NOV. 19, 1912.

*Massachusetts Highway Commission, 15 Ashburton Place, Boston, Mass.*

GENTLEMEN: — On the 24th of September, 1910, under recommendation of your Honorable Board, relative to telephone rates and service, the four-party line suburban residence service was removed from the current rate and service schedule. The time, however, for which subscribers then having this service might retain it, if they so desired, was extended with your approval until Nov. 1, 1912, and subsequently to March 1, 1913.

At the time the new rate schedule went into effect more than 25,000 subscribers were using this class of service. In less than two years thereafter more than 50 per cent. had abandoned it and selected service which they felt was better suited to their requirements, and which was, under the new rate schedule, for the first time obtainable.

That the new schedule with its greater variety and its more modern service is better suited to the growing needs of the community than the old is clearly indicated by the fact that more than 43,000 subscribers in the suburban district have selected either the private line, the two-party private ringing or the prepayment service. This means that under the new schedule they have either found a service suitably adapted to their requirements at the same or less cost than before, or that they have elected to pay slightly more for a proportionately improved class of service.

For the reasons and under the conditions submitted below, it seems to the company desirable to further extend, until at least March 1, 1914, the time for which four and six party line suburban residence subscribers may, if they so desire, retain their present service, and unless your Honorable Board orders otherwise, the company will so notify these subscribers.

While it is probably true that four and six party lines are under modern conditions strictly justifiable only in single exchange districts, and while it is certain that they could not be permanently retained in a multi-exchange district like the suburban, without constituting a steadily increasing menace to the service as a whole, there are, it is believed, two reasons which justify this request for such an extension at this time.

First, such an extension would give these subscribers further opportunity of learning from the actual experience of their friends and neighbors who are using the standard grades of service the advantages which this service offers against the multi-party lines.

Second, if there really are cases among these subscribers where standard grades of service do not fairly meet their proper requirements, it would give the company opportunity for further analysis of the traffic for the purpose of determining that fact and suggesting such additions to the standard schedule, if any, as might seem appropriate.

Objection may be raised in the case of six-party lines that instances might arise where because of the unequal distribution of these lines a depleted line could not be filled, thus establishing a discrimination against the four-party line or other subscribers. This objection is readily met, it seems to us, by the qualification that subscribers on such a line might be given the option of becoming four-party subscribers, or of being transferred to such other class of standard service as each might respectively prefer.

I am bringing this matter to the attention of your Honorable Board at this time, as our budget for 1913 is now being made up, and in case you should see fit not to approve this extension, it would be necessary to include in the budget provision for additions to the plant which would otherwise not be immediately required.

Respectfully submitted,

E. K. HALL,  
*Vice-President.*

Under date of Nov. 29, 1912, the telephone company sent a copy of the foregoing letter to its four-party and six-party suburban residence subscribers. The circular letter sent to the subscribers also contained the following statement:—

The company now desires to notify subscribers having this four and six party residence service that for the reasons and subject to the conditions stated in the foregoing letter, the time within which subscribers may retain their present service, if they so desire, is extended to at least March 1, 1914.

DEC. 4, 1912.

E. K. HALL, Esq., *Vice-President, New England Telephone and Telegraph Company, 50 Oliver Street, Boston, Mass.*

DEAR SIR:—I am directed by the commission to acknowledge the receipt of your letter of the 19th ult., in which you state that unless the commission orders otherwise 'it is the intention of the company to further extend until at least March 1, 1914, the time for which four and six party line suburban subscribers may, if they so desire, retain their present service. The reasons which you give are:—

First, such an extension would give these subscribers further opportunity of learning from the actual experience of their friends and neighbors, who are using the standard grades of service, the advantages which this service offers against the multi-party lines.

Second, if there really are cases among these subscribers where standard grades of service do not fairly meet their proper requirements, it would give the company opportunity for further analysis of the traffic for the purpose of determining that fact and suggesting such additions to the standard schedule, if any, as might seem appropriate.

It was for those or substantially similar reasons that the commission approved the retention of these rates from September, 1910, until March 1, 1913, and it believes that if the subscribers and the company do not gain the desired knowledge in that time they are not likely to do so a year later.

The commission cannot, therefore, approve a further extension of time, but, as it understands its powers to be only recommendatory, it will not, of course, order a termination of the four and six party suburban residence rates on March 1 next.

I am further instructed to say that the commission will be very glad to consider at any time any change in or addition to the standard schedule that your analyses of traffic and of other conditions in this particular instance may cause you to bring before it.

Yours truly,

F. I. BIELER,  
*Secretary.*



## ANNUAL RETURNS.

The companies have made their regular annual returns, which will be found in Appendix C.

## CONTINUATION OF INVESTIGATION.

Traffic data have been collected during the last year under the supervision of the commission's experts, and the accounts of the company have been kept, so that it will soon be possible to have a study made of the effect of the new rates to ascertain whether they meet the needs of the community and are equitable as between different classes of subscribers, and what changes, if any, should be made. It seemed to the commission wise to wait until there had been sufficient time for the effect of the new rates recommended for the whole State to be shown.

## SUGGESTIONS FOR LEGISLATION.

*Telephone Investigation.*

The Legislature of 1909, by chapter 78 of the Resolves of that year, provided that the Massachusetts Highway Commission should have a study made of the operations and methods of accounting of the New England Telephone and Telegraph Company. Thirty-five thousand dollars was made available for this study, the telephone company repaying to the Treasurer and Receiver-General the expenses incurred.

Studies have been continued under the direction of the commission's experts, D. C. and W. B. Jackson, and there is now only an unexpended balance of a little over \$3,000 remaining, a large part of which must be paid out for the reports and studies already made.

The new rate schedule recommended and adopted for the Boston and suburban districts has now been in effect about two years, and the new schedule recommended and adopted for all other places in the Commonwealth has now been in effect about one year.

The commission feels that it is desirable that this work should be continued, that traffic counts should be made, and the effect of the new rates studied, to see if they are equitable and just,

whether they meet the needs of the communities, and, if not, what changes or improvements should be made.

A further study might show inequalities that should be adjusted or that certain charges or rates should be changed or revised.

It therefore recommends that money be made available for this purpose on the same terms on which it was made available in 1908 and again in 1909.

WM. D. SOHIER,

F. D. KEMP,

JAMES W. SYNAN,

*Massachusetts Highway Commission.*

## APPENDIX A.

COMMUNICATION OF FEB. 3, 1912, TO THE MASSACHUSETTS  
HIGHWAY COMMISSION CONCERNING QUESTIONS ASKED BY  
THE SENATE JAN. 17, 1912.

Boston, Feb. 3, 1912.

Col. WM. D. SOHIER, *15 Ashburton Place, Boston, Mass.*

DEAR COLONEL SOHIER:—In accordance with the request contained in your letter of Jan. 25, 1911, we give you herewith additional data in regard to the telephone service in the metropolitan (Boston and Suburban) district.

## CHANGES TO NEW CLASSES OF SERVICE.

The new rates were formally offered to the public in September, 1910, and Nov. 1, 1910, was named as the date when they would become effective for all subscribers. The period within which the subscribers had the option of retaining their old rates or changing to the new was, however, extended from time to time, and only as recently as the first part of September, 1911, were substantially all of the subscribers to the "A" rate, or \$162 business unlimited service over the entire metropolitan area, required to take service under the new schedule. The period during which the subscribers to the "S" and "T" services (six and four-party residence unlimited services over the entire suburban district) may retain the old service has been extended to March, 1913. These extensions of time have been made, as we understand it, at the request of the subscribers, and for the purpose of allowing ample time for them to get information in regard to the best service for each to take.

The relatively recent date at which the transfer was made of a large number of the "A" subscribers to the new rates makes it yet too early to tell what the final effect of the change of these subscribers will be upon the revenue of the company, but the results thus far secured are in correspondence with the estimates which we made for the commission. The large number of "S" and "T" subscribers who still continue that service also makes it impossible to yet tell what the final effect of the entire new schedule will be.

We enclose herewith a table giving the numbers of telephones in the old and new classes of subscribers service (with the excep-

tion of private branch exchange, public pay station, receiving line and extension telephone service) on the dates of Dec. 31, 1910, and April 30, 1911, Aug. 26, 1911, and Dec. 31, 1911, and which thereby shows the quarterly changes for the past year of the number of main stations (*i.e.*, not including extension telephones) in each of the regular classes of service other than the private branch exchange, public pay station and receiving line services. A scrutiny of this table shows the rapidity with which the transfer of subscribers to the various new classes of service has been occurring during the year. The first page of the table shows the displaced classes of service except as otherwise indicated by foot notes, and the second page shows the new classes. A second table gives totals of the foregoing and also totals of all other telephones in the metropolitan district.

As illustrations of the rapidity with which the numbers of subscribers in the new classes of service have changed within the twelve months, we may point to the special business unlimited service in the central district, and the two-party residence measured service in the suburban districts. The special business unlimited service (Class 1B) had in service in the central district 222 telephones on Dec. 31, 1910, 399 telephones on April 30, 1911, 1,931 telephones on Aug. 26, 1911, and 2,218 telephones on Dec. 31, 1911. The two-party residence measured service (Class 2MR) had in service in the suburban districts on these dates, respectively, 6,647, 11,788, 13,867 and 16,790 telephones. The rate of change in many of the other classes of service has been proportionally rapid, as may be seen from the attached table.

Changes in the displaced classes have also been rapid. For instance, the number in Class A, \$162 unlimited service, fell from 3,438 to 8 telephones from April 30 to Dec. 31, 1911; and the Class UB, four-party business coin-box, under the old rate, fell from 1,386 to 6 subscribers in the same period. Even the T class, four-party residence unlimited suburban service, which old subscribers may still retain, fell in number 4,420 subscribers during the period from April 30, 1911, to Dec. 31, 1911.

#### AVERAGE PRICE PAID PER MESSAGE.

The now available data indicate that the new schedule has reduced the average revenue per message for all classes of service within the metropolitan district as much as our estimates anticipated. The full traffic count now in progress will give more information on this matter, but the telephone company's operating records for the calendar year 1911 show that the average price paid by the subscribers for

messages within the metropolitan district was more than a quarter of a cent per message lower in 1911 than in 1909. This figure is apparently accompanied by a small increase in the number of messages originated per telephone in the district. We believe these conclusions drawn from the operating records of the company are reliable, but their final verification must await a comparison of the results of the traffic count now under way with the results of the similar counts on which our report of Feb. 14, 1910, was based.

This reduction in the average price paid per message has gone mostly to the smaller users. Some of the unlimited service users, particularly among those formerly paying \$162 per year for unlimited Boston and suburban service, are now paying more per message than formerly; but such subscribers were obtaining their former service partially at the expense of other users.

The difference in revenue per station derived from the cheapest grade of suburban service and that derived from the most expensive grade of central service is large, and we have not undertaken to compute an exact average reduction in the revenue per telephone in 1911 compared with that of 1910 or 1909 for the entire metropolitan district, but the data now available agree with the figure given at the top of page 3 of our report to the commission dated Dec. 28, 1911. That is, the average saving to subscribers per telephone is between 6 and 7 per cent. as between the calendar year 1910, when the new rates were partly in effect, and the calendar year 1911, when the new rates were more generally in effect. This is less than the percentage saving per message for the reason that the average number of completed messages per telephone seems to have increased slightly. More exact figures of the changes in the numbers of messages per telephone and the average price per message paid by the subscribers cannot be given until data from the full count of the traffic which is now in progress have been obtained for comparison with the counts on which our report of Feb. 14, 1910, was based.

#### FURTHER REVISION OF RATES.

We do not feel that the data now available in regard to the effect of the new rates warrant any extensive or immediate revision of either the rates for local service within the districts or of the toll charges for messages extending beyond the limits of the local districts. Some adjustments in the schedule may be made from time to time by the recommendation of the commission, as has already been done.

An extensive traffic record is now being compiled for the purpose

of enabling final adjustments to be made with sound judgment, but this cannot come to a finality until after the new rates have been in effect a sufficient length of time to obtain a full count of the traffic which arises under them.

The question of the telephone rates and service has been before your commission for some five years, and your engineers have had the matter under consideration for nearly four years. During this period some \$55,000 have been spent by the commission in obtaining the necessary records and data and in carrying out the investigations requisite to intelligent regulation of the rates. This comprises work for the whole of Massachusetts, and includes the money expended by the commission for the appraisal of the telephone company's property in 1909.

The telephone company has also gone to large expense in connection with the appraisal and in preparing special records and making special studies in connection with the changes in rates. The subscribers are obviously already profiting largely from the results of these expenditures and the commission's activity. The new Boston and suburban rates are now in full and efficient operation, with the exception that the "S" and "T" rates are continued until 1913. Detailed information will be obtained as to the full operation of these new rates by the studies now under way, and any extended review of the rates should clearly be left until after the studies are completed during the course of this year. That is, the length of time which the new rates have been in effect has not been sufficient to definitely determine the final effect of these rates on the revenue and traffic, and it is, therefore, not practicable at the present time to arrive at any sound judgment of the advantages or disadvantages that might accrue to subscribers from any extended revision of the rates. Any extended changes forced at this time could only be made on the basis of expediency and would be likely to introduce disadvantage to at least as many subscribers as they favored.

#### EFFECT OF ORIGINAL CHANGE TO 5-CENT TOLLS FOR 5 MILES.

The telephone company has from time to time made studies to determine the increase in the toll traffic interchanged between the central district and the suburban exchanges within 5 miles, occasioned by the reduction made in April, 1908, of the charge for such toll messages from 10 cents to 5 cents. The data and conclusions have been transmitted to us as the studies were made, and the conclusions seem to us sound.

In a study of this question made in March, 1909, the company

estimated that the traffic under the 5-cent tolls would in 1913 be double the traffic that might have been expected under the corresponding 10-cent tolls, if the 10-cent rate had remained in force. This conclusion was drawn from the rate of growth in numbers of messages per annum before and after the change. A later study made from fuller data in November, 1910, revised this estimate, and indicated that at no time would the traffic under the 5-cent tolls be double the traffic that might have been expected under the 10-cent tolls. This later study indicated that in September, 1909, the traffic under the 5-cent tolls was double the traffic which had existed under the 10-cent tolls in April, 1908, the time at which the reduction in the toll rate was put into effect, but that the traffic under the 5-cent rate would never grow to reach double the corresponding traffic which might have been expected from the rate of growth which had been going on under the 10-cent rate. The gross revenue of the company was, therefore, apparently decreased permanently by that change, and the recoupment of the company in its net receipts, therefore, apparently came from more economical operating made possible by the denser traffic over the toll lines.

The new rates put into effect in 1910 extended the 5-cent radius to 8 miles, and the gathering of data for the 5-mile radius was discontinued. The recent readjustment making the local service for measured rate telephones extend to 8 miles, does away with all toll for measured rate telephones up to the 8-mile distance. Data are now being gathered for the purpose of seeing whether it is reasonable to reduce toll rates for messages which go beyond 8 miles.

#### THE SENATE ORDER OF JAN. 17, 1912.

In respect to the questions contained in the Senate order of Jan. 17, 1912, inquiring "Whether the public interest requires and whether the revenues of the New England Telephone and Telegraph Company would permit that the cost of service in the metropolitan district in any or all of the following classes of service be reduced," our examination of the results produced thus far by the new rates has brought us to the following opinions:—

1 (a). The average revenue per message from the unlimited business service in the central district is now probably far enough below the average revenue per message for the other classes of service so that a reduction of the rate for this service would work injustice to the measured rate subscribers throughout the territory. Our traffic counts now in progress will show the facts of this service, but the full data cannot be forthcoming until mid-summer or later.

1 (b). There are comparatively few unlimited residence service subscribers in the central district, and their effect on the revenue of the telephone company is therefore not large, but it is our opinion that the rates for these services are now as low as is consistent with equity to the subscribers in other classes of service and to the telephone company.

2 (a). In view of the recent reduction from 5 cents to 3 cents in the charge for excess messages going outside of local exchange districts but remaining within an 8-mile radius, — which in effect extends the local area of the measured service to a full 8-mile radius, — the rates for these measured services are, generally speaking, as low as the revenues of the telephone company will now permit. The traffic and other records which are now being prepared may show some readjustment and modifications that are reasonable and desirable. Any general modifications which might be made now, however, would be forced, and would not be based on a consideration of the facts in the case, and might seriously interfere with equity in the gradual adjustment of the rates at large.

2 (b). It is our opinion that the conditions relating to this residence measured service are substantially the same as those relating to the above-mentioned measured business service, and no modification in the rates should be made until the data which are now being gathered show that such modifications can be equitably made, at which time, if any modifications prove reasonable, they can be made on the recommendation of the commission.

3 (a). It is our opinion that the unlimited business service rates for local district service in the E, F, G and H districts are now as low as is consistent with equity to the other subscribers and to the telephone company.

3 (b). The rates for unlimited residence service in the local districts in the E, F, G and H districts are reasonably low, and we believe that no reductions could be made without injustice to the other subscribers.

3 (c). In view of the recent modification in the rate for excess messages outside of the local district but within the 8-mile radius, — which extends the area of each measured service zone to include the whole of the 8-mile radius, — we believe that the rates for district measured service in the E, F, G and H districts are generally fair and reasonable. It is possible that modifications may be found desirable after further test, but such modifications should be made only on consideration of the effect of the rates and on recommendation of the commission after a sufficient trial is completed, and should not be forced without definite knowledge.



3 (d). It is our opinion that the conditions relating to the rates for district residence measured service in the E, F, G and H districts are substantially the same as the conditions relating to the business measured service in these districts, and that no modifications should be made until the additional records show what modifications may be made, if any, with equity to all subscribers.

4 (a). No reduction of the rates for toll calls within the 8-mile radius for unlimited business district service ought to be made, at least until the records of traffic and costs of rendering service which are now being obtained with respect to the new rates have been carried further. Any modifications which might be made before such records are available would be forced, and might render later equitable adjustments difficult or impracticable.

4 (b). The conditions relating to the charges for toll calls within the 8-mile radius for unlimited residence service are like those relating to the unlimited business district service, and no modifications should be made until the full records of traffic, revenue and costs are available.

5 (a), (b), (c), (d). It is our opinion that when substantially all the subscribers in the metropolitan and suburban districts shall have taken service under the new schedule of rates, it may be possible to make further reductions and readjustments of the rates. The data that are being collected will, in our opinion, show where such reductions can be made for the greatest benefit of the largest number of subscribers. It now seems probable that they should be made either by reducing the toll charges for messages going radially inward and outward of the central district, where the traffic is dense and can therefore be most economically handled by the telephone company, or by extending the distance for the 5-cent toll messages, or by reducing the rate charged to the measured rate telephones for excess messages after the minimum guaranty has been paid, and especially for those using a very large number of calls. Until sufficient time has elapsed for the full effect of the new rates to show themselves in the receipts, it will be impossible to tell by which method such reductions and readjustments can most equitably be made. We believe that this should continue to be the subject of careful study, based on the records of traffic, revenue and cost of the service, and that any such modifications should be made gradually under the supervision of the commission, as the revenues warrant.

With further respect to the Senate order, we believe that it is premature to now take up any general consideration of the new rates. They are already plainly favorable to the great majority

of telephone subscribers. They are arranged so that adjustment can be made from time to time by the recommendation of the commission at any part of the schedules most favorably affecting the subscribers at large, whenever the revenues obtained by the telephone company show that changes are warranted; and if extended revisions were made before the new traffic counts now under way are completed, it would more than likely precipitate unfairness between classes of service and prevent the gradual improvements and reductions in the price of the messages that all subscribers should enjoy as the revenues of the telephone company increase with the increasing numbers of telephones in use.

Respectfully yours,

(Signed) D. C. AND WM. B. JACKSON.

*Number of Main Stations in Each of the Ordinary Classes of Service (P, B, X, excluded) on Dec. 31, 1910, and on April 30, Aug. 26 and Dec. 31, 1911.*

Code.	DESCRIPTION OF SERVICE.	NUMBER OF MAIN STATIONS.			
		Dec. 31, 1910.	April 30, 1911.	Aug. 26, 1911.	Dec. 31, 1911.
A	Special business unlimited metropolitan.	3,790	3,438	573	8
D	Special residence unlimited metropolitan.	682	568	178	11
E	Two-party residence unlimited metropolitan.	25	24	11	-
G	Special business unlimited suburban.	353	210	15	1
H	Two-party business unlimited suburban.	403	308	32	-
(J) <sup>1</sup>	Special residence unlimited suburban.	1,400	1,623	1,851	2,074
(K) <sup>1</sup>	Two-party residence unlimited suburban.	1,117	2,302	3,240	4,585
Mb <sup>2</sup>	Special business measured metropolitan.	3,824	2,092	2,981	3,099
Mr <sup>2</sup>	Special residence measured metropolitan.	1,255	813	880	824
Nb	Two-party business measured metropolitan.	2,610	863	33	3
Nr	Two-party residence measured metropolitan.	980	533	138	2
Pb	Special business measured suburban.	366	186	84	-
Pr	Special residence measured suburban.	442	2	5	-
Qb	Two-party business measured suburban.	1,800	866	226	3
Qr	Two-party residence measured suburban.	1,115	9	9	2
Rb	Three-party business measured suburban.	248	116	10	-
Rr	Three-party residence measured suburban.	261	161	42	-
S <sup>3</sup>	Six-party residence unlimited suburban.	4,515	4,048	3,599	3,348
T <sup>3</sup>	Four-party residence unlimited suburban.	21,073	16,687	13,800	12,267
Ub	Four-party business coin-box (old rates).	4,884	1,386	139	6
Ur	Four-party residence coin-box (old rates).	2,761	679	22	9

<sup>1</sup> This service has been retained under the new schedule at a reduced rate.

<sup>2</sup> This service has been retained under the new schedule at the original rate.

<sup>3</sup> This service is not offered to new subscribers, but old subscribers may retain it until March, 1913.

*Number of Main Stations in Each of the Ordinary Classes of Service (P, B, X, excluded) on Dec. 31, 1910, and on April 30, Aug. 26 and Dec. 31, 1911 — Concluded.*

Code.	DESCRIPTION OF SERVICE.	NUMBER OF MAIN STATIONS.			
		Dec. 31, 1910.	April 30, 1911.	Aug. 26, 1911.	Dec. 31, 1911.
	<i>Central District.</i>				
1 B	Special business unlimited, district rate, .	222	399	1,931	2,218
1 R	Special residence unlimited, district rate, .	126	174	211	351
2 R	Two-party residence unlimited, district rate, .	2	4	3	4
1 MB	Special business measured, district rate, .	3,299	5,509	6,329	6,765
2 MB	Two-party business measured, district rate, .	645	1,163	1,307	1,339
1 MR	Special residence measured, district rate, .	1,057	1,419	1,341	1,639
2 MR	Two-party residence measured, district rate, .	517	715	651	836
4 PB	Four-party business coin-box (new rates), .	1,693	3,094	3,303	3,498
4 PR	Four-party residence coin-box (new rates), .	1,465	2,132	2,083	2,328
	<i>Suburban District.</i>				
1 B	Special business unlimited, district rate, .	172	416	865	966
2 B	Two-party business unlimited, district rate, .	36	87	197	220
1 R	Special residence unlimited, district rate, .	852	1,201	1,294	1,312
2 R	Two-party residence unlimited, district rate, .	2,140	4,018	4,995	5,947
1 MB	Special business measured, district rate, .	1,238	2,493	3,143	3,272
2 MB	Two-party business measured, district rate, .	1,140	2,482	3,398	3,551
1 MR	Special residence measured, district rate, .	1,396	2,106	2,263	2,424
2 MR	Two-party residence measured, district rate, .	6,647	11,788	13,867	16,790
4 PB	Four-party business coin-box (new rates), .	1,279	3,314	4,279	4,595
4 PR	Four-party residence coin-box (new rates), .	1,448	3,188	3,886	4,406
	Total main stations — ordinary classes, .	79,278	82,706	83,184	88,593

*Total Stations in Boston and Suburban District, Dec. 31, 1910, April 30, 1911, Aug. 26, 1911, Dec. 31, 1911.*

	NUMBER OF STATIONS.				
	Dec. 31, 1910.	April 30, 1911.	Aug. 26, 1911.	Dec. 31, 1911.	
<i>Main Telephones, Ordinary Classes.</i>					
Unlimited service, . . . . .	4,497	4,030	762	19	
{ Metropolitan rates, . . . . .	28,861	25,268	22,537	22,275	
{ Suburban rates, . . . . .	3,550	6,299	9,496	11,018	
Measured and coin-box service, . . . . .	11,103	4,744	4,042	3,838	
{ Metropolitan rates, . . . . .	9,443	2,962	497	20	
{ Suburban rates, . . . . .	21,824	39,403	45,850	51,423	
Total of above, . . . . .	79,278	82,706	83,184	88,593	
<i>Extension and Terminals.</i>					
Private branch, exchange terminals, . . . . .	28,857	27,975	28,905	30,810	
Unlimited service extensions, . . . . .	7,265	7,418	6,368	6,366	
Measured and coin-box service extensions, . . . . .	5,759	6,197	6,921	7,507	
Total of above extensions and terminals, . . . . .	39,881	41,590	42,194	44,683	
<i>Miscellaneous.</i>					
Main Telephones: —					
Receiving telephones, company's pay stations, employees' telephones, etc., . . . . .	6,227	6,352	6,369	6,541	
Extensions: —					
Pay station extensions, . . . . .	363	380	347	336	
Total miscellaneous, . . . . .	6,590	6,732	6,716	6,877	
Grand total, . . . . .	125,749	131,028	132,094	140,153	

## APPENDIX B.

## REPORT OF D. C. AND WM. B. JACKSON.

BOSTON, Dec. 28, 1912.

*Honorable Massachusetts Highway Commission, 15 Ashburton Place,  
Boston, Mass.*

GENTLEMEN:—In response to Secretary Bieler's letter of December 14, we give you the following report in regard to telephone rates and service during the year 1912 in the State of Massachusetts:—

## METROPOLITAN (BOSTON AND SUBURBAN) DISTRICT.

During the year 1912 the rates in the territory of Boston and its immediate suburbs, made effective in accordance with the recommendation of the Massachusetts Highway Commission to the New England Telephone and Telegraph Company under date of Aug. 23, 1910, together with certain modifications introduced from time to time, have been in operation. In December, 1911, there were also in use 12,633 of the so-called "T" or four-party suburban residence unlimited telephones, 3,406 of the so-called "S" or six-party suburban residence unlimited telephones, and 405 telephones of miscellaneous obsolete rates. During the year 1912, all but two of the telephones in the miscellaneous rates have gone over to the rates now effective.

At the time of the introduction of the rates now effective, the subscribers to the four-party and six-party classes were allowed to retain their service for a time, and the period for such retention has been extended from time to time until, on Nov. 29, 1912, the subscribers to these classes were notified that the four-party and six-party rates would be available to those now using them until March 1, 1914. On Sept. 1, 1910, the four-party and six-party classes embraced 24,709 and 4,983 telephones, respectively. By Dec. 11, 1911, 49 per cent. of the four-party class and 32 per cent. of the six-party class had changed over to the new rates, and additional changes have occurred during the year 1912, so that on Nov. 30, 1912, the number remaining in these classes was 44.3 per cent. of the number on Sept. 1, 1910.

We have continued to receive month by month statements of the earnings of the company by exchanges in the metropolitan (Boston and suburban) district, and we now have a complete monthly record covering the last four years, with the exception of the figures for the month of December, 1912, for which the records are not yet made up. The figures show a consistent average decrease of gross receipts per telephone for the year 1911 compared with the year 1910. The decrease acquired in 1911 has been retained during the year 1912. All the new rates have now been in force for at least a full year, and the conditions have now become reasonably stable. Comparing the average of the gross receipts per telephone in the suburban district for 1910 with 1911, and with the twelve months ending November, 1912, shows a decrease of \$3.58 per telephone, or 8.1 per cent., in 1911 compared with 1910, and a reduction of \$3.51 per telephone, or 7.9 per cent., in 1912 as compared with 1910. A similar comparison of the average gross receipts per telephone for the 7 central district exchanges, — Main, Fort Hill, Haymarket, Oxford, Richmond, Tremont and Back Bay, — for the same periods, shows a decrease of \$2.28 per telephone, or 3.1 per cent., in 1911 as compared with 1910, and a decrease of \$1.10 per telephone, or 1.5 per cent., in 1912 as compared with 1910.

There was an average number of 69,113 telephones in use in the suburban exchanges and 51,119 telephones in use in the central exchanges during the year 1910, and the gross receipts were \$6,830,000. In the twelve months ending with November, 1912, there was an average number of 87,440 telephones in the suburban exchanges and an average number of 59,214 telephones in use in the central exchanges, and the gross receipts for the period amounted to \$7,869,000. The estimated total revenue based on the average receipts per station for 1912, but calculated for an average number of telephones equal to the average number in service during 1910, shows a decrease of over \$295,000 as compared with the gross revenue during the corresponding period of 1910. These various figures of gross receipts show that the substantial reduction in telephone cost obtained in 1911 compared with 1910 has been maintained during the past year. In fact, the average prices per telephone in the years 1911 and 1912 have been remarkably alike in the suburban exchanges, and the change in the average price per telephone in the central district shows the effect of the final abolition of the \$162 unlimited service rate and accession of the very large users to measured rate service. This may give a

margin for further modifications of the rates for the benefit of the small users.

During the last year the number of telephones in the central district has increased 9.7 per cent. as compared with 8.1 per cent. during the previous year. In the suburban district the percentage increase was 12.8 per cent. In numbers of telephones these increases are 5,464 for the central district and 10,474 for the suburban district. The sum of these, namely, 15,938 telephones, is much the largest increase in the territory in any year of the company's history. It is 1,508 telephones larger than the increase of 1911, and 5,512 telephones more than the increase for the year 1910 immediately preceding the introduction of the new rates. Certain of the new rates have proved particularly attractive to the public. The two-party unlimited residence zone class showed a gain of 1,390 telephones, or 24.4 per cent. The 480-call two-party measured residence class in the suburbs, with a minimum charge of \$24 per year, showed a gain of 6,433 telephones, or 39.8 per cent. The corresponding class in the central district, with a minimum annual charge of \$36 for 720 calls, showed a gain of 169 telephones, or 21.1 per cent. The total number of telephones now receiving service on zone two-party measured rate residence lines is 23,538. The four-party residence coin-box service also proved popular in the suburban district, and showed an increase of 19.3 per cent. There is now a total of 15,842 four-party coin-box subscribers' telephones in the metropolitan district. The \$45 and \$36 special and two-party full suburban unlimited residence rates, which were made effective on Feb. 9, 1911, are now embraced by 8,588 telephones.

The total number of telephones in the metropolitan (Boston and suburban) district is now 154,499, including 44 telephones formerly served from the Woburn exchange and now served from the Burlington exchange.

#### REDUCTION IN PRICE OF EXCESS CALLS.

On Jan. 1, 1912, a modification of the rates went into effect whereby all calls from measured rate telephones going to exchanges within the metropolitan district not more than 8 miles away from the calling subscriber's exchange obtained the original zone rate. This reduced the price of excess calls extending beyond the limits of the zone, but not extending beyond 8 miles from the calling subscriber's exchange, from 5 to 3 cents.



## MISCELLANEOUS RATE CHANGES.

Various miscellaneous modifications of rates have also been made from time to time throughout the State with the approval of the commission. Other than those already referred to, these were of minor moment.

## SPECIAL RECORD OF BOSTON AND SUBURBAN TRAFFIC.

A special record of traffic originating at subscribers' stations under the several classifications of service in each of the exchanges of the Boston and suburban districts was begun in December, 1911. The purpose of this record has been to ascertain the average annual calling rates and distributions of completed messages for each class of service in each of the exchanges. Calls to official stations and toll calls terminating without the Boston and suburban districts were not included in this work. Three complete rounds of observations were made of normal traffic and Saturday and Sunday traffic, and also special observations were made of summer and holiday traffic. At least one exchange of each rate classification was observed on every holiday. The record continued without interruption until Sept. 1, 1912. The clerical labor in connection with the record was performed by a special corps of company clerks varying in number from ten to sixteen, and three company inspectors were employed for the purpose of directing the work, two in the field and one at headquarters. The work was also under constant inspection on behalf of the commission. The actual record of the calls was taken by the regular operating force under the direction of the chief operator, who had been prepared in advance by letters of instruction and conferences with one of the inspectors. It was designed to get not only the numbers of messages originated by each class of service, but also the distribution between exchanges, and it was therefore necessary to make a record of the terminating exchange as well as the originating exchange for each call. A careful study of the statistics compiled, and the methods used in calculating the calling rates for the telephones, indicates that the reasonable accuracy of the work may be relied upon and that the information regarding calling rates (after the data are completed) will be of singular value in computing further modifications of the rate schedule.

## GROUP RATES IN MASSACHUSETTS OUTSIDE OF BOSTON.

The new group rates which were put into effect throughout the State elsewhere than Boston and its suburbs during 1911 and the early part of 1912 have proved successful. The effect on the telephone development has been favorable, and the rate of growth since the rates went into effect exceeded the average rate of growth for the previous four years. As a result of these new rates the numbers of subscribers in the better classes of service have increased materially, and the proportion of multi-party lines has correspondingly diminished. The increase in 1912 in the number of telephones of the New England Telephone and Telegraph Company and Southern Massachusetts Telephone Company in Massachusetts other than in Boston and its suburbs was 14,434, making the total in the State other than in Boston and its suburbs 160,311 telephones.

## TOTAL INCREASE OF TELEPHONES DURING TWELVE MONTHS.

During the twelve months ending with November, 1912, the number of telephones of the New England Telephone and Telegraph Company (including the Southern Massachusetts Telephone Company) in the State of Massachusetts increased by 30,340 to 314,766. This increase may be compared with the increase of 29,590 telephones for the twelve months ending with November, 1911, and the increase of 26,515 telephones for the year 1910.

## EXCHANGES ADDED IN STATE OF MASSACHUSETTS DURING TWELVE MONTHS.

During the last year the exchanges of Bellevue, Burlington and Manamet were added to the system, and the Worcester exchange was divided into two exchanges called Park and Cedar, respectively. During the summer season an exchange was maintained at Woods Hole.

## COMPANY'S CONDITION.

The unusual rate of increase in the number of telephones following upon the introduction of the commission's rates, added to the necessity of providing for the reduction of multi-party lines, has imposed on the company an unusual amount of work in the way of new construction, in order that the requirements of improved service and the demands of the increasing business could be met.

Respectfully submitted,

D. C. AND WM. B. JACKSON.

TABLE I. — *Comparison of Telephones as of November, 1909, 1910, 1911 and 1912.*

	NUMBER OF TELEPHONES.		
	Central.	Suburban.	Metropolitan.
November, 1909, . . . . .	49,368	64,337	113,705
November, 1910, . . . . .	52,411	71,720	124,131
Increase, . . . . .	3,043	7,383	10,426
Per cent. increase, . . . . .	6.2	11.5	9.2
November, 1910, . . . . .	52,411	71,720	124,131
November, 1911, . . . . .	56,637	81,924	138,561
Increase, . . . . .	4,226	10,204	14,430
Per cent. increase, . . . . .	8.1	14.2	11.6
November, 1911, . . . . .	56,637	81,924	138,561
November, 1912, . . . . .	62,101	92,398 <sup>1</sup>	154,499 <sup>1</sup>
Increase, . . . . .	5,464	10,474	15,938
Per cent. increase, . . . . .	9.7	12.8	11.5

NOTE. — These figures do not include extension telephones, private branch exchange telephones, or official telephones.

<sup>1</sup> Including subscribers in Burlington.

TABLE II. — *Comparison of Main Stations in Obsolete Rates Nov. 30, 1911, and Nov. 30, 1912.*

	Nov. 30, 1911.	Nov. 30, 1912.	Decrease.	Per Cent. Decrease.
Metropolitan service:—				
A (\$162), special unlimited business, . .	11	—	11	100
D (\$116), special unlimited residence, . .	25	2	23	92
E (\$90), two-party unlimited residence, . .	8	—	8	100
NB (\$45), two-party measured business, . .	13	—	13	100
NR (\$45), two-party measured residence, . .	21	—	21	100
Suburban service:—				
G (\$84), special unlimited business, . .	8	—	8	100
H (\$66), two-party unlimited business, . .	18	—	18	100
PB (\$48), special measured business, . .	74	—	74	100
PR (\$48), special measured residence, . .	5	—	5	100
QB (\$36), two-party measured business, . .	186	—	186	100
QR (\$36), two-party measured residence, . .	8	—	8	100
RB (\$33), three-party measured business, . .	6	—	6	100
RR (\$33), three-party measured residence, . .	22	—	22	100
Total, . . . . .	405	2	403	—

NOTE. — Four-party and six-party unlimited suburban services, although declared obsolete, are still used by present subscribers.

Charles F. Adams, 2d,	.	.	.	.	.	Boston, Mass.
Charles W. Amory,	.	.	.	.	.	Boston, Mass.
George F. Baker,	.	.	.	.	.	New York, N. Y.
Francis Blake,	.	.	.	.	.	Auburndale, Mass.
Harry H. Brigham,	.	.	.	.	.	New York, N. Y.
Alexander Cochrane,	.	.	.	.	.	Boston, Mass.
W. Murray Crane,	.	.	.	.	.	Dalton, Mass.
Henry P. Davison,	.	.	.	.	.	New York, N. Y.
George P. Gardner,	.	.	.	.	.	Boston, Mass.
Norman W. Harris,	.	.	.	.	.	Chicago, Ill.
Henry L. Higginson,	.	.	.	.	.	Boston, Mass.
Henry S. Howe,	.	.	.	.	.	Brookline, Mass.
Charles E. Hubbard,	.	.	.	.	.	Boston, Mass.
Rudolph Ellis,	.	.	.	.	.	Bryn Mawr, Pa.
Lewis C. Ledyard,	.	.	.	.	.	New York, N. Y.

John J. Mitchell, . . . . .	Chicago, Ill.
Richard Olney, . . . . .	Boston, Mass.
William L. Putnam, . . . . .	Boston, Mass.
Sylvanus L. Schoonmaker, . . . . .	New York, N. Y.
Eugene V. R. Thayer, . . . . .	Boston, Mass.
Theodore N. Vail, . . . . .	Lyndonville, Vt.
John I. Waterbury, . . . . .	Morristown, N. J.
Moses Williams, . . . . .	Brookline, Mass.
Robert Winsor, . . . . .	Boston, Mass.

## CAPITAL.

Capital authorized by charter, . . . . .	\$500,000,000 00
Capital authorized by vote of company, . . . . .	330,518,700 00 <sup>1</sup>
Capital paid in, 3,281,271 shares; par value, \$100, . . . . .	328,127,100 00

Whole number of stockholders, . . . . .	49,028
-----------------------------------------	--------

## DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
July 1, 1899	July 1, 1929	Stocks and bonds deposited, . . . . .	4	\$78,000,000 00
March 1, 1906	March 1, 1936	Not secured, . . . . .	4	18,113,000 00
Sept. 15, 1909	Sept. 15, 1913	Stocks deposited, . . . . .	4½	2,000,000 00
Sept. 15, 1909	Sept. 15, 1914	Stocks deposited, . . . . .	4½	2,000,000 00
Sept. 15, 1909	Sept. 15, 1915	Stocks deposited, . . . . .	4½	2,000,000 00
May 1, 1912	Nov. 1, 1912	Not secured, . . . . .	4½	2,000,000 00
May 1, 1904	May 1, 1907	Not secured, . . . . .	—	5,000 00
Apr. 18, 1904	Demand, .	Not secured, <sup>2</sup> . . . . .	6	4,000,000 00
Apr. 25, 1904	Demand, .	Not secured, <sup>2</sup> . . . . .	6	2,030,000 00
Apr. 26, 1904	Demand, .	Not secured, <sup>2</sup> . . . . .	6	1,000,000 00
Apr. 27, 1904	Demand, .	Not secured, <sup>2</sup> . . . . .	6	1,000,000 00
Apr. 29, 1904	Demand, .	Not secured, <sup>2</sup> . . . . .	6	1,000,000 00
May 1, 1904	Demand, .	Not secured, <sup>2</sup> . . . . .	6	2,000,000 00
Feb. 23, 1910	Demand, .	Not secured, . . . . .	5	3,000,000 00
Jan. 6, 1911	Demand, .	Not secured, . . . . .	5	1,000,000 00
Total amount of bonds and notes, . . . . .				\$119,118,000 00
Capital stock installments, . . . . .				4,017,204 57
Capital paid in, . . . . .				328,127,100 00
Total liability for capital and loans, . . . . .				\$451,262,304 57

<sup>1</sup> Includes 550,864 shares to be issued under circular of June 20, 1911.<sup>2</sup> Notes receivable sold with endorsement of A. T. & T. Company.

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Telephone revenue, <sup>1</sup> . . . . .		\$11,013,305 26
Operation, . . . . .	\$4,323,532 98	
Current maintenance, . . . . .	2,424,158 67	
Depreciation, . . . . .	2,116,712 82	
Total expenses, not including taxes, . . . . .		8,864,404 47
Net earnings, . . . . .		\$2,148,900 79
Miscellaneous income, . . . . .		33,983,166 66
Total income above expenses, . . . . .		\$36,132,067 45
Interest charges and taxes:—		
Interest on funded debt, . . . . .	\$3,874,742 54	
Interest on floating debt, . . . . .	1,592,940 79	
Taxes, . . . . .	1,153,416 99	
Total charges, . . . . .		6,621,100 32
Surplus of net income above charges, . . . . .		\$29,510,967 13
Dividends declared, 8 per cent. on varying amounts, . . . . .		24,035,613 20
Surplus for year ending June 30, 1912, . . . . .		\$5,475,353 93

## EARNINGS (WHOLE SYSTEM).

Gross telephone revenue:—		
Exchange service:—		
Subscribers' stations, . . . . .		\$12,376 91
Toll service:—		
Toll service, . . . . .	\$8,129,270 29	
Attachments and rentals, . . . . .	224,704 42	
Messenger service, . . . . .	287 99	
Miscellaneous toll earnings, . . . . .	124 22	
Leased lines, . . . . .	2,646,541 43	
Total toll service, . . . . .		11,000,928 35
Miscellaneous income:—		
Real estate revenue, . . . . .	\$170,982 65	
Dividends on stocks of other companies, . . . . .	21,931,573 87	
Interest on bonds and notes, etc., . . . . .	4,355,413 78	
Sundry, . . . . .	4,252 28	
Revenue from licensed companies for rights and privileges of connection, of administrative, engineering, and other general services, and for use of telephone patents and other property, . . . . .	7,520,944 08	
Total miscellaneous income, . . . . .		33,983,166 66
Total telephone revenue and income, . . . . .		\$44,996,471 92

<sup>1</sup> Telephone revenue in Massachusetts, \$20,430.95.

## EXPENSES (WHOLE SYSTEM).

	Items.	Totals.
Operation:—		
General, . . . . .		\$2,512,838 46
Commercial, . . . . .		224,686 77
Traffic, . . . . .		1,353,315 59
Rights, privileges and use of property:—		
Conduit, pole and other space, and plant, . . . . .		227,233 05
Insurance, . . . . .		5,459 11
Total operation, . . . . .		\$4,323,532 98
Total current maintenance, . . . . .		2,424,158 67
Depreciation of plant, . . . . .		2,116,712 82
Total expenses not including taxes, . . . . .		\$8,864,404 47

## GENERAL BALANCE SHEET.

<i>Assets.</i>		
Exchange construction, . . . . .		\$69,001 14
Toll construction:—		
Toll lines, . . . . .	\$43,570,717 35	
Equipment, . . . . .	1,826,947 13	
Total toll construction, . . . . .		45,397,664 48
Construction in process, . . . . .		1,526,382 95
Real estate required in part for operation, . . . . .		2,092,620 81
Investment real estate not required for operation, . . . . .		507,359 00
Office furniture and fixtures, . . . . .		169,404 64
Tools and vehicles, . . . . .		124,831 08
Total plant account, . . . . .		\$49,887,264 10
Telephones, . . . . .		12,890,528 90
Securities of other companies, . . . . .		400,624,402 07
Current assets:—		
Cash on hand, . . . . .	\$14,810,762 22	
Notes receivable, . . . . .	90,543,728 98	
Accounts receivable, . . . . .	4,660,909 16	
Supplies on hand, . . . . .	772,465 32	
Total current assets, . . . . .		110,787,865 68
Total debits, . . . . .		\$574,190,060 75
<i>Liabilities.</i>		
Capital stock, common, . . . . .	\$328,127,100 00	
Capital stock, installments, . . . . .	4,017,204 57	
Total capital stock, . . . . .		\$332,144,304 57
Bonded debt, . . . . .		96,113,000 00
Current liabilities:—		
Loans and notes payable, . . . . .	\$35,355,000 00	
Audited vouchers and accounts, . . . . .	574,161 13	
Dividends not called for (including dividend payable July 15), . . . . .	6,568,201 50	
Matured interest coupons, unpaid (including due July 1, \$1,560,000), . . . . .	1,597,570 00	
Unearned revenue, . . . . .	1,242 28	
Total current liabilities, . . . . .		44,096,174 91
Amount carried forward, . . . . .		\$472,353,479 48

	Items.	Totals.
<i>Amount brought forward,</i>		\$472,353,479 48
Accrued liabilities:—		
Interest accrued but not due,	\$590,040 11	
Taxes accrued but not due,	387,876 70	
Miscellaneous accrued liabilities,	87,435 49	
Total accrued liabilities,		1,065,352 30
Sinking and other special funds:—		
Depreciation reserve,		41,130,785 71
Total liabilities,		\$514,549,617 49
Balance, surplus,		59,640,443 26
Total credits,		\$574,190,060 75

## PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$58,956,047 30
Premium on capital stock issued on conversion of bonds,		963,652 27
Premium on securities sold,		50,000 00
Undivided profits year ending		
June 30, 1912,	\$5,475,353 93	
Less transfer to depreciation reserve,	2,800,000 00	
		2,675,353 93
Discount on collateral trust bonds sold in 1911,	\$2,595,000 00	
Expense of listing capital stock,	100,000 00	
Miscellaneous loss not wholly applicable to the		
year in question,	309,610 24	
Balance, surplus,	59,640,443 26	
	\$62,645,053 50	\$62,645,053 50

## PLANT ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

<i>Additions.</i>	Items.	Totals.
Exchange construction,		\$139 80
Equipment,		256,828 30
Toll construction,		2,156,366 16
Construction in process, net,		50,492 05
Real estate required for operation,		15,454 22
Total additions,		\$2,479,280 53
<i>Deductions.</i>		
Plant sold, removed or abandoned,	\$474,938 10	
Office furniture and fixtures,	8,625 76	
Tools and vehicles,	15,034 85	
Total deductions,		498,598 71
Net additions to plant account for the year,		\$1,980,681 82



STATISTICAL INFORMATION (OVERHEAD, UNDERGROUND AND SUBMARINE  
SYSTEMS IN MASSACHUSETTS).

Number of instruments, . . . . .	8
Number of operators, . . . . .	91
Underground system:—	
Conduit, feet, . . . . .	108,778
Duct, feet, . . . . .	730,012
Cable, feet, . . . . .	246,721
Wire, feet, . . . . .	40,000,832
Submarine system:—	
Cable, feet, . . . . .	4,364
Wire, feet, . . . . .	158,437
Overhead system:—	
Pole line, miles, . . . . .	502.55
Iron wire, miles, . . . . .	199.22
Copper wire, miles, . . . . .	15,564.61

GENERAL REMARKS AND EXPLANATIONS.

"No exchange service is furnished by this company in the State of Massachusetts ; its business in said State consists of the furnishing of lines and facilities to enable the transmission of intelligence, through the exchanges of other telephone companies, between the subscribers and patrons of one of such companies and those of another. The traffic carried on over its lines is almost entirely interstate in character."

AUTOMATIC TELEPHONE COMPANY OF NEW BEDFORD.

Location of principal business office: 43 William Street, New Bedford, Mass.

Date of organization: October, 1898.

Date of incorporation: Nov. 12, 1898.

State in which incorporated: Massachusetts.

Date of annual meeting: second Wednesday in April.

Date when company began to give service: Dec. 1, 1900.

Service is given by this company over its own lines in Acushnet, Dartmouth, Fairhaven and New Bedford.

GENERAL OFFICERS AND OFFICIAL TITLES.

Frederic Taber, . . . . .	<i>President.</i>
Lot B. Bates, . . . . .	<i>Vice-President.</i>
Clarence H. James, . . . . .	<i>Treasurer.</i>
Frederic H. Taber, . . . . .	<i>Clerk.</i>
William R. Binkley, . . . . .	<i>Superintendent.</i>

DIRECTORS AND RESIDENCES.

Francis T. Akin, . . . . .	New Bedford, Mass.
Lot B. Bates, . . . . .	New Bedford, Mass.
Frederic Taber, . . . . .	New Bedford, Mass.
Frederic H. Taber, . . . . .	New Bedford, Mass.
Edward D. Sherman, . . . . .	New Bedford, Mass.
Frederick W. Besse, . . . . .	New Bedford, Mass.
Thomas Hersom, . . . . .	New Bedford, Mass.
William C. Hawes, . . . . .	New Bedford, Mass.
Timothy J. Moriarty, . . . . .	New Bedford, Mass.
William R. Binkley, . . . . .	New Bedford, Mass.

## CAPITAL.

Capital authorized by charter, . . . . .	\$100,000 00
Capital authorized by vote of company, . . . . .	200,000 00
Capital paid in, 4,000 shares; par value, \$50, . . . . .	200,000 00

Whole number of stockholders, . . . . .	182
Number of stockholders resident in Massachusetts, . . . . .	178
Amount of stock held in Massachusetts (shares), . . . . .	3,906

## DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
Jan. 6, 1912	Jan. 6, 1913	Note, . . . . .	5	\$10,000 00
Jan. 12, 1912	July 12, 1912	Note, . . . . .	5	10,000 00
April 11, 1912	April 11, 1913	Note, . . . . .	5	6,000 00
April 30, 1912	Oct. 30, 1912	Note, . . . . .	5	2,000 00
May 1, 1911	May 1, 1931	<i>Bonds.</i> First mortgage, . . . . .	5	60,000 00
Total amount of bonds and notes, . . . . .				\$88,000 00
Capital paid in, . . . . .				200,000 00
Total liability for capital and loans, . . . . .				\$288,000 00

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross telephone revenue, . . . . .		\$49,859 36
Less rebates and discounts, . . . . .		1,962 41
Telephone revenue, . . . . .		\$47,896 95
Operation, . . . . .	\$12,378 29	
Current maintenance, . . . . .	7,197 31	
Total expenses, not including taxes, . . . . .		19,575 60
Net telephone earnings, . . . . .		\$28,321 35
Miscellaneous income, . . . . .		623 33
Total income above expenses, . . . . .		\$28,944 68
Interest charges and taxes:—		
Interest on funded debt, . . . . .	\$2,825 00	
Interest on floating debt, . . . . .	936 60	
Taxes, . . . . .	3,283 10	
Total charges, . . . . .		7,044 70
Surplus of net income above charges, . . . . .		\$21,899 98
Amount carried forward, . . . . .		\$21,899 98

	Items.	Totals.
<i>Amount brought forward,</i>		\$21,899 98
Dividends:—		
Dividends declared on preferred stock, 6% on \$100,000,	\$6,000 00	
Dividends declared on common stock, 7% on \$100,000,	7,000 00	
Total dividends declared,		13,000 00
Surplus for year ending June 30, 1912,		\$8,899 98

## EARNINGS.

## Gross telephone revenue:—

Exchange service:—		
Subscribers' stations,	\$48,730 83	
Attachments and rentals,	23 05	
Total exchange service,		\$48,753 88
Toll service,		1,105 48
Total gross telephone revenue,		\$49,859 36
Less rebates and discounts,		1,962 41
Telephone revenue,		\$47,896 95
Miscellaneous income:—		
Real estate revenue,		623 33
Total telephone revenue and income,		\$48,520 28

## EXPENSES.

## Operation:—

General:—		
Executive department,	\$1,490 00	
Accounting department,	2,270 00	
Financial department,	500 00	
Total general,		\$4,260 00
Commercial:—		
Advertising,	\$396 31	
Canvassing,	1,194 00	
Directory,	187 50	
Revenue collecting,	1,560 00	
Total commercial,		3,337 81
Traffic:—		
Traffic supervision,	\$1,040 00	
Service inspection,	1,414 00	
Operators' wages,	312 00	
Operating clerical wages,	364 00	
Other operating expenses,	991 77	
Total traffic,		4,121 77
Insurance,		658 71
Total operation,		\$12,378 29
Maintenance:—		
Repairs:—		
Aërial plant,	\$3,753 17	
Underground plant,	68 70	
Central office equipment,	1,977 80	
Subscribers' equipment,	1,397 64	
Total current maintenance,		7,197 31
Total expenses, not including taxes,		\$19,575 60

## GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Exchange construction:—		
Overhead lines, . . . . .	\$100,506 36	
Underground lines, . . . . .	71,440 18	
Central office equipment, . . . . .	52,082 71	
Subscribers' station equipment, . . . . .	61,026 29	
Total exchange construction and equipment, ———		\$285,055 54
Toll construction:—		
Overhead lines, . . . . .		3,746 80
Real estate required for operation, . . . . .		17,618 12
Total plant account, . . . . .		\$306,420 46
Licenses, . . . . .		15,000 00
Current assets:—		
Cash on hand, . . . . .	\$2,391 92	
Accounts receivable, . . . . .	11,585 07	
Total current assets, . . . . .	—————	13,976 99
Total debits, . . . . .		\$335,397 45
<i>Liabilities.</i>		
Capital stock, common, . . . . .	\$100,000 00	
Capital stock, preferred, . . . . .	100,000 00	
Total capital stock, . . . . .	—————	\$200,000 00
Bonded debt, . . . . .		60,000 00
Current liabilities:—		
Loans and notes payable, . . . . .	\$28,000 00	
Unearned subscribers' rentals, . . . . .	7,940 62	
Total current liabilities, . . . . .	—————	35,940 62
Sinking and other special funds:—		
Depreciation, . . . . .		10,000 00
Total liabilities, . . . . .		\$305,940 62
Balance, surplus, . . . . .		29,456 83
Total credits, . . . . .		\$335,397 45

## PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year, . . . . .		\$24,476 85
Gross telephone revenue, . . . . .		49,859 36
Real estate revenue (rent less building repairs), . . . . .		623 33
Expenses, not including taxes, . . . . .	\$19,575 60	
Rebates and discounts, . . . . .	1,962 41	
Interest on funded debt, . . . . .	2,825 00	
Interest on floating debt, . . . . .	936 60	
Taxes, . . . . .	3,283 10	
Commission on sale of \$39,000 bonds, . . . . .	3,920 00	
Dividends declared on stock, . . . . .	13,000 00	
Balance, surplus, . . . . .	29,456 83	
	—————	
	\$74,959 54	\$74,959 54

## PLANT ACCOUNTS (ADDITIONS DURING THE YEAR).

Exchange construction:—	Items.	Totals.
Overhead lines, . . . . .	\$6,945 54	
Underground lines, . . . . .	4,353 28	
Central office equipment, . . . . .	3,652 57	
Subscribers' station equipment, . . . . .	4,860 19	
Total exchange construction and equipment, —————		\$19,811 58
Real estate required for operation, . . . . .		2,613 12
		<hr/>
Total additions to plant account for the year, . . . . .		\$22,424 70

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	1,968
Number of instruments, . . . . .	2,147
Number of operators, . . . . .	1
Number of subscribers on party lines, . . . . .	624
Number of subscribers on single lines, . . . . .	1,344
Underground system:—	
Conduit, feet, . . . . .	19,710
Duct, feet, . . . . .	143,410
Cable, feet, . . . . .	66,489
Wire, feet, . . . . .	10,872,100
Overhead system:—	
Pole line, miles, . . . . .	39.5
Iron wire, miles, . . . . .	443
Copper wire, miles, . . . . .	167

## CAPE COD TELEPHONE COMPANY.

Location of principal business office: Hyannis, Mass.

Date of organization: Feb. 5, 1903.

Date of incorporation: Feb. 10, 1903.

State in which incorporated: Massachusetts.

Date of annual meeting: first week day in September.

Date when company began to give service: April 23, 1903.

Service is given by this company over its own lines in the town of Barnstable.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Frank Percy Goss, . . . . .	<i>President.</i>
Alfred Willard Guyer, . . . . .	<i>Vice-President.</i>
Arthur Gordon Guyer, . . . . .	<i>Clerk and Treasurer.</i>

## DIRECTORS AND RESIDENCES.

Frank Percy Goss, . . . . .	Hyannis, Mass.
Alfred Willard Guyer, . . . . .	Hanover, N. H.
Arthur Gordon Guyer, . . . . .	Hyannis, Mass.

## CAPITAL.

Capital authorized by charter, . . . . .	\$1,000 00
Capital authorized by vote of company, . . . . .	5,000 00
Capital paid in, 240 shares; par value, \$25, . . . . .	6,000 00
Whole number of stockholders, . . . . .	13
Number of stockholders resident in Massachusetts, . . . . .	12
Amount of stock held in Massachusetts (shares), . . . . .	239

## DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
Feb. 15, 1912	Aug. 15, 1912	Not secured, . . . . .	5½	\$200 00
June 28, 1912	Dec. 28, 1912	Not secured, . . . . .	6	200 00
Total amount of bonds and notes, . . . . .				\$400 00
Capital paid in, . . . . .				6,000 00
Total liability for capital and loans, . . . . .				\$6,400 00

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Telephone revenue, . . . . .		\$2,210 78
Operation, . . . . .	\$1,200 67	
Current maintenance, . . . . .	556 48	
Depreciation, . . . . .	300 00	
Total expenses, not including taxes, . . . . .		2,057 15
Total income above expenses, . . . . .		\$153 63
Interest on floating debt, . . . . .	\$23 00	
Taxes, . . . . .	110 50	
Total charges, . . . . .		133 50
Surplus of net income above charges, . . . . .		\$20 13
Dividends declared, 6 per cent. on \$6,000, . . . . .		360 00
Deficit for year ending June 30, 1912, . . . . .		\$339 87

## EARNINGS.

Exchange service:—	
Subscribers' stations, . . . . .	\$2,210 78

## EXPENSES.

Operation:—	
General:—	
Executive department, . . . . .	\$500 00
Financial department, . . . . .	19 69
Total general, . . . . .	\$519 69
Commercial:—	
Directory, . . . . .	22 50
Traffic:—	
Operators' wages, . . . . .	\$553 48
Central office rent, . . . . .	105 00
Total traffic, . . . . .	658 48
Total operation, . . . . .	\$1,200 67
Amount carried forward, . . . . .	\$1,200 67

	Items.	Totals.
<i>Amount brought forward,</i> . . . . .		\$1,200 67
Maintenance:—		
Repairs:—		
Aërial plant, . . . . .		556 48
Depreciation of plant, . . . . .		300 00
		<hr/>
Total expenses, not including taxes, . . . . .		\$2,057 15

## GENERAL BALANCE SHEET.

*Assets.*

Exchange construction:—		
Overhead lines, . . . . .	\$4,900 00	
Central office equipment, . . . . .	200 00	
Subscribers' station equipment, . . . . .	1,400 00	
Total exchange construction and equipment, <hr/>		\$6,500 00
Current assets:—		
Cash on hand, . . . . .	\$10 14	
Supplies on hand, . . . . .	100 00	
Total current assets, . . . . . <hr/>		110 14
		<hr/>
Total debits, . . . . .		\$6,610 14

*Liabilities.*

Capital stock, common, . . . . .		\$6,000 00
Current liabilities:—		
Loans and notes payable, . . . . .		400 00
		<hr/>
Total liabilities, . . . . .		\$6,400 00
Balance, surplus, . . . . .		210 14
		<hr/>
Total credits, . . . . .		\$6,610 14

## PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year, . . . . .		\$550 01
Gross telephone revenue, . . . . .		2,210 78
Expenses, not including taxes, . . . . .	\$2,057 15	
Interest on floating debt, . . . . .	23 00	
Taxes, . . . . .	110 50	
Dividends declared on stock, . . . . .	360 00	
Balance, surplus, . . . . .	210 14	
	<hr/>	<hr/>
	\$2,760 79	\$2,760 79

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	205
Number of instruments, . . . . .	209
Number of operators, . . . . .	4
Number of pay stations, . . . . .	1
Number of subscribers on party lines, . . . . .	204
Number of subscribers on single lines, . . . . .	1
Overhead system:—	
Pole line, miles, . . . . .	35
Iron wire, miles, . . . . .	216

## FALL RIVER AUTOMATIC TELEPHONE COMPANY.

Location of principal business office: 215 Bank Street, Fall River, Mass.

Date of organization: Dec. 7, 1899.

Date of incorporation: Dec. 8, 1899.

State in which incorporated: Massachusetts.

Date of annual meeting: second Monday in April.

Date when company began to give service: Oct. 1, 1901.

Service is given by this company over its own lines in the city of Fall River.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Edward B. Jennings, . . . .	<i>President.</i>
Bradford D. Davol, . . . .	<i>Treasurer.</i>
Clark Chase, Jr., . . . .	<i>Assistant Treasurer and Manager.</i>
Arthur A. Noel, . . . .	<i>Superintendent.</i>

## DIRECTORS AND RESIDENCES.

Edward B. Jennings, . . . . .	Fall River, Mass.
Edmund W. Wakelee, . . . . .	Englewood, N. J.
John T. Swift, . . . . .	Fall River, Mass.
Joseph Watters, . . . . .	Fall River, Mass.
Martin Feeney, . . . . .	Fall River, Mass.
Bradford D. Davol, . . . . .	Fall River, Mass.
Danforth H. Hathaway, . . . . .	Fall River, Mass.

## CAPITAL.

Capital authorized by charter, . . . . .	\$135,000 00
Capital authorized by vote of company, . . . . .	135,000 00
Capital paid in, 2,700 shares; par value, \$50, . . . . .	135,000 00

Whole number of stockholders, . . . . .	66
Number of stockholders resident in Massachusetts, . . . . .	64
Amount of stock held in Massachusetts (shares), . . . . .	1,924

## DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
June 1, 1903	June 1, 1923	Mortgage on land, buildings, license, franchise and property.	5	\$65,000 00
Total amount of bonds and notes, . . . . .				\$65,000 00
Capital paid in, . . . . .				135,000 00
Total liability for capital and loans, . . . . .				\$200,000 00



## CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Telephone revenue, . . . . .	.	\$27,077 19
Operation, . . . . .	\$8,497 93	
Current maintenance, . . . . .	9,658 23	
Total expenses, not including taxes, . . . . .	<u>                    </u>	18,156 16
Net telephone earnings, . . . . .	.	\$8,921 03
Miscellaneous income, . . . . .	.	112 87
Total income above expenses, . . . . .	.	<u>                    </u> \$9,033 90
Interest charges and taxes:—		
Interest on funded debt, . . . . .	\$3,250 00	
Taxes, . . . . .	1,287 59	
Total charges, . . . . .	<u>                    </u>	4,537 59
Surplus for year ending June 30, 1912, . . . . .	.	<u>                    </u> \$4,496 31

## EARNINGS.

Gross telephone revenue:—		
Exchange service:—		
Subscribers' stations, . . . . .	\$26,222 11	
Pay stations, . . . . .	57 28	
Attachments and rentals, . . . . .	98 34	
Total exchange service, . . . . .	<u>                    </u>	\$26,377 73
Toll service, . . . . .	.	699 46
Telephone revenue, . . . . .	.	<u>                    </u> \$27,077 19
Miscellaneous income:—		
Interest on bank deposits, . . . . .	.	112 87
Total telephone revenue and income, . . . . .	.	<u>                    </u> \$27,190 06

## EXPENSES.

Operation:—		
General:—		
Executive department, . . . . .	\$1,684 50	
Accounting department, . . . . .	1,123 30	
Legal department, . . . . .	176 00	
Total general, . . . . .	<u>                    </u>	\$2,983 80
Commercial:—		
Advertising, . . . . .	\$88 13	
Canvassing, . . . . .	1,016 90	
Directory, . . . . .	94 32	
Revenue collecting, . . . . .	949 45	
Pay-station commissions, . . . . .	5 70	
Uncollectible accounts, . . . . .	776 02	
Total commercial, . . . . .	<u>                    </u>	2,930 52
Traffic:—		
Service inspection, . . . . .	\$350 00	
Operators' wages, . . . . .	1,170 00	
Other operating expenses, . . . . .	498 06	
Total traffic, . . . . .	<u>                    </u>	2,018 06
Amount carried forward, . . . . .	.	<u>                    </u> \$7,932 38

	Items.	Totals.
<i>Amount brought forward,</i>		\$7,932 38
Rights, privileges and use of property:—		
Rental of instruments,	\$49 50	
Conduit, pole and other space,	42 60	
Total rights, privileges and use of property,		92 10
Insurance,		473 45
Total operation,		\$8,497 93
Maintenance:—		
Repairs:—		
Supervision,	\$936 00	
Aërial plant,	5,073 16	
Underground plant,	40 90	
Central office equipment,	243 85	
Subscribers' equipment,	3,364 32	
Total current maintenance,		9,658 23
Total expenses, not including taxes,		\$18,156 16

## GENERAL BALANCE SHEET.

*Assets.*

Exchange construction:—		
Overhead lines,	\$59,268 84	
Underground lines,	72,328 07	
Central office equipment,	25,000 00	
Subscribers' station equipment,	61,570 30	
Total exchange construction and equipment,		\$218,167 21
Toll construction:—		
Overhead lines,		3,746 80
Real estate required for operation,		11,166 83
Tools and vehicles,		400 00
Total plant account,		\$233,480 84
Contracts and licenses,		10,000 00
Current assets:—		
Cash on hand,	\$7,484 97	
Accounts receivable,	4,506 38	
Total current assets,		11,991 35
Total debits,		\$255,472 19

*Liabilities.*

Capital stock,		\$135,000 00
Bonded debt,		65,000 00
Current liabilities:—		
Audited vouchers and accounts,		658 51
Accrued liabilities:—		
Interest accrued but not due,	\$270 83	
Taxes accrued but not due,	927 84	
Total accrued liabilities,		1,198 67
Sinking and other special funds:—		
Reserve for depreciation,		19,237 39
Total liabilities,		\$221,094 57
Balance, surplus,		34,377 62
Total credits,		\$255,472 19

## PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year, . . . . .		\$29,881 31
Gross telephone revenue, . . . . .		27,077 19
Miscellaneous income:—		
Interest on bank deposit, . . . . .		112 87
Expenses, not including taxes, . . . . .	\$18,156 16	
Interest on funded debt, . . . . .	3,250 00	
Taxes, . . . . .	1,287 59	
Balance, surplus, . . . . .	34,377 62	
	<hr/>	
	\$57,071 37	\$57,071 37

## PLANT ACCOUNTS (ADDITIONS DURING THE YEAR).

	Items.	Totals.
Subscribers' station equipment, . . . . .	\$815 30	
Tools and vehicles, . . . . .	120 00	
Total additions, . . . . .	<hr/>	\$935 30

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	1,016
Number of instruments, . . . . .	1,091
Number of operators, . . . . .	2
Number of pay stations, . . . . .	12
Number of subscribers on party lines, . . . . .	244
Number of subscribers on single lines, . . . . .	772
Underground system:—	
Conduit, feet, . . . . .	18,691.2
Duct, feet, . . . . .	101,798.4
Cable, feet, . . . . .	56,971.2
Wire, feet, . . . . .	10,841,476.8
Overhead system:—	
Pole line, miles, . . . . .	60.97
Iron wire, miles, . . . . .	406.92
Copper wire, miles, . . . . .	1,084.68

## HEATH TELEPHONE COMPANY.

Location of principal business office: Shelburne Falls, Mass.

Date of organization: Feb. 14, 1898.

Date of incorporation: Feb. 14, 1898.

State in which incorporated: Massachusetts.

Date of annual meeting: last Monday in October.

Date when company began to give service: Feb. 14, 1898.

Service is given by this company over its own lines in the following towns:—

Ashfield,	Conway,	Monroe,
Buckland,	Hawley,	Rowe,
Charlemont,	Heath,	Shelburne.
Colrain,	Leyden,	

This company also gives service in the State of Vermont.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Walter E. Kinsman, . . . .	<i>President and General Manager.</i>
Fred W. Story, . . . .	<i>Vice-President.</i>
Herbert Newell, . . . .	<i>Clerk and Treasurer.</i>

## DIRECTORS AND RESIDENCES.

Walter E. Kinsman, . . . . .	Shelburne Falls, Mass.
Herbert Newell, . . . . .	Shelburne Falls, Mass.
Fred W. Story, . . . . .	Boston, Mass.
Jasper N. Keller, . . . . .	Boston, Mass.
Carl T. Keller, . . . . .	Boston, Mass.
Matt B. Jones, . . . . .	Boston, Mass.
Fred H. Smith, . . . . .	Ashfield, Mass.
William A. Barber, . . . . .	Leyden, Mass.
Alexander J. Patterson, . . . . .	Conway, Mass.
Charles L. Donelson, . . . . .	Elm Grove, Mass.
Charles S. Goodnow, . . . . .	Whitingham, Vt.

## CAPITAL.

Capital authorized by charter, . . . . .	\$1,020 00
Capital authorized by vote of company, . . . . .	96,000 00
Capital paid in, 3,072 shares; par value, \$30, . . . . .	92,160 00
Whole number of stockholders, . . . . .	342
Number of stockholders resident in Massachusetts, . . . . .	306
Amount of stock held in Massachusetts (shares), . . . . .	2,896
Amount of stock held by parent telephone company (shares), . . . . .	1,196

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Telephone revenue, <sup>1</sup> . . . . .		\$32,098 04
Operation, . . . . .	\$12,557 84	
Current maintenance, . . . . .	5,063 55	
Depreciation, . . . . .	5,880 00	
Total expenses, not including taxes, . . . . .		23,501 39
Net telephone earnings, . . . . .		\$8,596 65
Miscellaneous income, . . . . .		25 50
Total income above expenses, . . . . .		\$8,622 15
Interest charges and taxes:—		
Interest on floating debt, . . . . .	\$62 50	
Taxes, . . . . .	996 13	
Total charges, . . . . .		1,058 63
Surplus of net income above charges, . . . . .		\$7,563 52
Dividends declared, 5 per cent on \$92,160, . . . . .		4,608 00
Surplus for year ending June 30, 1912, . . . . .		\$2,955 52

<sup>1</sup> Telephone revenue in Massachusetts, \$25,167.03.

## EARNINGS (WHOLE SYSTEM).

## Gross telephone revenue:—

	Items.	Totals.
Exchange service:—		
Subscribers' stations, . . . . .	\$22,839 22	
Pay stations, . . . . .	431 30	
Total exchange service, . . . . .		\$23,270 52
Toll service, . . . . .		8,827 52
Total gross telephone revenue, . . . . .		\$32,098 04
Miscellaneous income, . . . . .		25 50
Total telephone revenue and income, . . . . .		\$32,123 54

## EXPENSES (WHOLE SYSTEM).

## Operation:—

## General:—

Executive, accounting and financial departments, . . . . .	\$2,207 43	
Legal department, . . . . .	1 00	
Total general, . . . . .		\$2,208 43

## Commercial:—

Advertising and canvassing, . . . . .	\$79 54	
Directory, . . . . .	43 14	
Revenue accounting, . . . . .	819 50	
Revenue collecting, . . . . .	650 08	
Total commercial, . . . . .		1,592 26

## Traffic:—

Traffic supervision and service inspection, . . . . .	\$1,202 81	
Operators' wages, . . . . .	6,229 15	
Central office rent, . . . . .	805 04	
Other operating expenses, . . . . .	61 82	
Total traffic, . . . . .		8,298 82

## Rights, privileges and use of property:—

Rental of instruments, . . . . .	\$180 35	
Conduit, pole and other space, . . . . .	277 98	
Total rights, privileges and use of property, . . . . .		458 33

Total operation, . . . . .	\$12,557 84
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## Maintenance:—

## Repairs:—

Aërial plant, . . . . .	\$2,950 85	
Central office equipment, . . . . .	548 78	
Subscribers' equipment, . . . . .	1,563 92	
Total current maintenance, . . . . .		5,063 55

Depreciation of plant, . . . . .	5,880 00
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Total expenses, not including taxes, . . . . .	\$23,501 39
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## GENERAL BALANCE SHEET.

## Assets.

Exchange construction, . . . . .	\$103,183 58
Office furniture and fixtures, . . . . .	452 25
Tools and vehicles, . . . . .	217 52
Total plant account, . . . . .	\$103,853 35
Securities of other companies, . . . . .	390 00
Amount carried forward, . . . . .	\$104,243 35

	Items.	Totals.
<i>Amount brought forward,</i>		\$104,243 35
Current assets:—		
Cash on hand,	\$1,326 50	
Accounts receivable,	5,110 67	
Supplies on hand,	1,567 84	
Total current assets,		8,005 01
Total debits,		\$112,248 36
<i>Liabilities.</i>		
Capital stock,		\$92,160 00
Current liabilities:—		
Audited vouchers and accounts,	\$172 25	
Salaries and wages unpaid,	97 50	
Total current liabilities,		269 75
Sinking and other special funds:—		
Replacement reserve,		11,025 37
Total liabilities,		\$103,455 12
Balance, surplus,		8,793 24
Total credits,		\$112,248 36

## PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$5,970 18
Gross telephone revenue,		32,098 04
Miscellaneous income,		25 50
Expenses, not including taxes,	\$23,501 39	
Interest on floating debt,	62 50	
Taxes,	996 13	
Dividends declared on stock:—		
5 per cent. due Aug. 15, 1911,	4,608 00	
For depreciation:—		
Office furniture, tools and teams,	132 46	
Balance, surplus,	8,793 24	
	\$38,093 72	\$38,093 72

## PLANT ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

<i>Additions.</i>	Totals.
Exchange construction,	\$5,398 67
Office furniture and fixtures,	26 82
Tools and vehicles,	82 42
Total additions,	\$5,507 91
<i>Deductions.</i>	
Tools, teams, furniture and fixtures,	132 46
Net additions to plant account for the year,	\$5,375 45

## STATISTICAL INFORMATION.

	In Massachusetts.	Outside Massachusetts.	Whole System.
Number of subscribers, . . . . .	1,065	313	1,383
Number of instruments, . . . . .	1,087	330	1,417
Number of operators, . . . . .	16	6	22
Number of pay stations, . . . . .	24	7	31
Number of subscribers on party lines, . . . . .	1,042	314	1,356
Number of subscribers on single lines, . . . . .	23	4	27
Overhead system:—			
Pole line, miles, . . . . .	290	117	407
Iron wire, miles, . . . . .	1,454	423	1,877
Copper wire, miles, . . . . .	80	6	86

## MASSACHUSETTS TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: 185 Franklin Street, Boston, Mass.

Date of organization: Nov. 15, 1898.

Date of incorporation: Nov. 15, 1898.

State in which incorporated: Massachusetts.

Date of annual meeting: first Monday in November.

Date when company began to give service: 1899.

Service is given by this company over its own lines in Boston, Stoughton and Taunton.

## GENERAL OFFICERS AND OFFICIAL TITLES.

A. Norton Taylor, . . . . . *President.*  
 William Shirden, . . . . . *Secretary and Treasurer.*

## DIRECTORS AND RESIDENCES.

A. Norton Taylor, . . . . . Newark, N. J.  
 Fred Jones, . . . . . Jersey City, N. J.  
 William Shirden, . . . . . New York, N. Y.  
 Joseph Q. Taylor, . . . . . Taunton, Mass.  
 Dudley G. Browning, . . . . . Newark, N. J.

## CAPITAL.

Capital authorized by charter, . . . . . \$10,000 00  
 Capital authorized by vote of company, . . . . . 10,000 00  
 Capital paid in, 100 shares; par value, \$100, . . . . . 10,000 00

Whole number of stockholders, . . . . . 6  
 Number of stockholders resident in Massachusetts, . . . . . 1  
 Amount of stock held in Massachusetts (share), . . . . . 1  
 Amount of stock held by parent telephone company (shares), . . . . . 80

## DEBTS,

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
May 4, 1906	On demand.	Bonds (when issued), . . . . .	5	\$3,430 00
June 6, 1906	On demand.	Bonds (when issued), . . . . .	5	1,750 00
July 8, 1906	On demand.	Bonds (when issued), . . . . .	5	1,385 00
Aug. 4, 1906	On demand.	Bonds (when issued), . . . . .	5	1,402 00
Sept. 7, 1906	On demand.	Bonds (when issued), . . . . .	5	1,675 00
Oct. 6, 1906	On demand.	Bonds (when issued), . . . . .	5	1,633 00
Nov. 3, 1906	On demand.	Bonds (when issued), . . . . .	5	4,500 00
Dec. 10, 1906	On demand.	Bonds (when issued), . . . . .	5	1,337 79
Jan. 3, 1907	On demand.	Bonds (when issued), . . . . .	5	4,000 00
Feb. 6, 1907	On demand.	Bonds (when issued), . . . . .	5	2,100 00
March 7, 1907	On demand.	Bonds (when issued), . . . . .	5	1,600 00
April 4, 1907	On demand.	Bonds (when issued), . . . . .	5	1,500 00
May 8, 1907	On demand.	Bonds (when issued), . . . . .	5	1,500 00
June 5, 1907	On demand.	Bonds (when issued), . . . . .	5	1,800 00
July 6, 1907	On demand.	Bonds (when issued), . . . . .	5	1,500 00
Aug. 8, 1907	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Sept. 4, 1907	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Oct. 5, 1907	On demand.	Bonds (when issued), . . . . .	5	5,000 00
Nov. 4, 1907	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Dec. 16, 1907	On demand.	Bonds (when issued), . . . . .	5	1,500 00
Jan. 10, 1908	On demand.	Bonds (when issued), . . . . .	5	3,500 00
Feb. 8, 1908	On demand.	Bonds (when issued), . . . . .	5	1,600 00
March 4, 1908	On demand.	Bonds (when issued), . . . . .	5	1,600 00
April 4, 1908	On demand.	Bonds (when issued), . . . . .	5	1,600 00
May 7, 1908	On demand.	Bonds (when issued), . . . . .	5	1,500 00
June 1, 1908	On demand.	Bonds (when issued), . . . . .	5	1,800 00
July 7, 1908	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Aug. 7, 1908	On demand.	Bonds (when issued), . . . . .	5	1,800 00
Sept. 12, 1908	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Oct. 26, 1908	On demand.	Bonds (when issued), . . . . .	5	3,500 00
Oct. 10, 1908	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Nov. 7, 1908	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Dec. 5, 1908	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Jan. 6, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Feb. 9, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
March 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
April 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
May 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
June 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
July 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Aug. 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Sept. 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Oct. 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Nov. 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Dec. 1, 1909	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Jan. 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Feb. 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
March 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
April 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
May 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
June 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
July 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Aug. 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Sept. 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Oct. 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Nov. 1, 1910	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Jan. 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Feb. 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
March 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
April 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
May 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
June 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
July 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Sept. 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Oct. 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Nov. 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Dec. 1, 1911	On demand.	Bonds (when issued), . . . . .	5	1,600 00
Jan. 1, 1912	On demand.	Bonds (when issued), . . . . .	5	1,500 00
Feb. 1, 1912	On demand.	Bonds (when issued), . . . . .	5	1,500 00
March 1, 1912	On demand.	Bonds (when issued), . . . . .	5	1,500 00
April 1, 1912	On demand.	Bonds (when issued), . . . . .	5	1,500 00
May 1, 1912	On demand.	Bonds (when issued), . . . . .	5	1,500 00
June 1, 1912	On demand.	Bonds (when issued), . . . . .	5	1,500 00
Total amount of bonds and notes, . . . . .				\$130,717 79
Capital paid in, . . . . .				10,000 00
Total liability for capital and loans, . . . . .				\$140,717 79



## CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Telephone revenue, . . . . .	.	\$3,818 55
Operation, . . . . .	\$8,195 74	
Current maintenance, . . . . .	6,834 95	
Total expenses not including taxes, . . . . .	<u>          </u>	15,030 69
Net telephone deficit, . . . . .	.	\$11,212 14
Miscellaneous deficit, . . . . .	.	3,147 90
Total deficit above income, . . . . .	.	\$14,360 04
Taxes, . . . . .	.	191 32
Deficit for year ending June 30, 1912, . . . . .	.	<u>\$14,551 36</u>

## EARNINGS.

Gross telephone revenue:—		
Exchange service:—		
Subscribers' stations, . . . . .	\$3,518 55	
Subway and pole rental, . . . . .	300 00	
Total telephone revenue, . . . . .	<u>          </u>	\$3,818 55

## EXPENSES.

Operation:—		
General:—		
Accounting department, . . . . .	\$400 00	
Legal department, . . . . .	2,819 74	
Total general, . . . . .	<u>          </u>	\$3,219 74
Traffic:—		
Operators' wages, . . . . .	\$1,560 00	
Operating clerical wages, . . . . .	1,916 00	
Central office rent, . . . . .	1,500 00	
Total traffic, . . . . .	<u>          </u>	4,976 00
Total operation, . . . . .	.	\$8,195 74
Repairs, . . . . .	.	6,834 95
Total expenses, not including taxes, . . . . .	.	<u>\$15,030 69</u>

## GENERAL BALANCE SHEET.

## Assets.

Exchange construction:—		
Overhead lines, . . . . .	\$13,261 60	
Underground lines, . . . . .	92,872 41	
Central office equipment, . . . . .	14,613 00	
Subscribers' station equipment, . . . . .	4,059 00	
Total exchange construction and equipment, . . . . .	<u>          </u>	\$124,806 01
Toll construction:—		
Underground lines, . . . . .	.	20,718 25
Office furniture and fixtures, . . . . .	.	2,328 00
Tools and vehicles, . . . . .	.	144 75
Total plant account, . . . . .	.	<u>\$147,997 21</u>
Amount carried forward, . . . . .	.	\$147,997 21

	Items.	Totals.
<i>Amount brought forward,</i>		\$147,997 21
Current assets: —		
Cash on hand,	\$4,206 65	
Notes receivable,	750 00	
Accounts receivable,	2,044 15	
Supplies on hand,	3,000 09	
Total current assets,		10,000 89
Total debits,		\$157,998 10
<i>Liabilities.</i>		
Capital stock,		\$10,000 00
Current liabilities: —		
Loans and notes payable,		130,717 79
Balance, surplus,		17,280 31
Total credits,		\$157,998 10

## PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$31,827 82
Gross telephone revenue,		3,518 55
Pole rental,		300 00
Miscellaneous income,		3 85
Real estate revenue,		22,708 99
Expenses, not including taxes,	\$15,030 65	
Taxes,	191 32	
Other items: —		
Operating and maintenance of leased building,	22,485 05	
Taxes and insurance on building,	3,371 84	
Balance, surplus,	17,280 31	
	\$58,359 21	\$58,359 21

## STATISTICAL INFORMATION.

Number of subscribers,	199
Number of instruments,	199
Number of operators,	7
Number of subscribers on party lines,	89
Number of subscribers on single lines,	110
Underground system: —	
Conduit, feet,	20,299
Duct, feet,	284,598
Cable, feet,	31,761
Wire, feet,	2,935,225
Overhead system: —	
Pole line, miles,	60.5
Iron wire, miles,	308

## NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: 50 Oliver Street, Boston, Mass.

Date of organization: Oct. 19, 1883.

Date of incorporation: Oct. 19, 1883.

State in which incorporated: New York.

Date of annual meeting: first Monday in May.

Date when company began to give service: October, 1883.

Cities and towns in Massachusetts in which service is given by the company over its own lines: —

Acton,	Chester,	Hampden,
Adams,	Chesterfield,	Hancock,
Agawam,	Chicopee,	Hardwick,
Alford,	Clarksburg,	Harvard,
Amesbury,	Clinton,	Hatfield,
Amherst,	Cohasset,	Haverhill,
Andover,	Concord,	Hingham,
Arlington,	Conway,	Hinsdale,
Ashburnham,	Cummington,	Holbrook,
Ashby,	Dalton,	Holden,
Ashfield,	Dana,	Holland,
Ashland,	Danvers,	Holliston,
Athol,	Dedham,	Holyoke,
Auburn,	Deerfield,	Hopedale,
Ayer,	Douglas,	Hopkinton,
Barre,	Dover,	Hubbardston,
Becket,	Dracut,	Hudson,
Bedford,	Dudley,	Hull,
Belchertown,	Dunstable,	Huntington,
Bellingham,	Easthampton,	Ipswich,
Belmont,	East Longmeadow,	Lancaster,
Berlin,	Egremont,	Lanesborough,
Bernardston,	Enfield,	Lawrence,
Beverly,	Essex,	Lee,
Billerica,	Erving,	Leicester,
Blackstone,	Everett,	Lenox,
Blandford,	Fitchburg,	Leominster,
Bolton,	Florida,	Leverett,
Boston,	Foxborough,	Lexington,
Boxborough,	Framingham,	Leyden,
Boxford,	Franklin,	Lincoln,
Boylston,	Gardner,	Littleton,
Braintree,	Georgetown,	Longmeadow,
Brimfield,	Gill,	Lowell,
Brookfield,	Gloucester,	Ludlow,
Brookline,	Goshen,	Lunenburg,
Buckland,	Grafton,	Lynn,
Burlington,	Granby,	Lynnfield,
Cambridge,	Granville,	Malden,
Canton,	Great Barrington,	Manchester,
Carlisle,	Greenfield,	Marlborough,
Charlemont,	Greenwich,	Marblehead,
Charlton,	Groton,	Maynard,
Chelmsford,	Groveland,	Medfield,
Chelsea,	Hadley,	Medford,
Cheshire,	Hamilton,	Medway,

Melrose,  
Mendon,  
Merrimac,  
Methuen,  
Middlefield,  
Middleton,  
Milford,  
Millbury,  
Millis,  
Milton,  
Monson,  
Montague,  
Monterey,  
Montgomery,  
Nahant,  
Natick,  
Needham,  
New Ashford,  
New Braintree,  
Newbury,  
Newburyport,  
New Marlborough,  
New Salem,  
Newton,  
Norfolk,  
North Adams,  
Northampton,  
North Andover,  
North Brookfield,  
Northborough,  
Northbridge,  
Northfield,  
North Reading,  
Norwood,  
Oakham,  
Orange,  
Otis,  
Oxford,  
Palmer,  
Paxton,  
Peabody,  
Pelham,  
Pepperell,  
Peru,  
Petersham,  
Phillipston,

Pittsfield,  
Plainfield,  
Prescott,  
Princeton,  
Quincy,  
Randolph,  
Reading,  
Revere,  
Rockport,  
Rowley,  
Royalston,  
Russell,  
Rutland,  
Salem,  
Salisbury,  
Sandisfield,  
Saugus,  
Savoy,  
Sharon,  
Sheffield,  
Shelburne,  
Sherborn,  
Shirley,  
Shrewsbury,  
Shutesbury,  
Somerville,  
Southborough,  
Southbridge,  
South Hadley,  
Southampton,  
Southwick,  
Spencer,  
Springfield,  
Sterling,  
Stockbridge,  
Stoneham,  
Stoughton,  
Stow,  
Sturbridge,  
Sudbury,  
Sunderland,  
Sutton,  
Swampscott,  
Templeton,  
Tewksbury,  
Topsfield,

Townsend,  
Tyringham,  
Tyngsborough,  
Upton,  
Uxbridge,  
Wakefield,  
Wales,  
Walpole,  
Waltham,  
Ware,  
Warren,  
Warwick,  
Washington,  
Watertown,  
Wayland,  
Webster,  
Wellesley,  
Wendell,  
Wenham,  
Westborough,  
West Boylston,  
West Brookfield,  
Westfield,  
Westford,  
Westhampton,  
Westminster,  
West Newbury,  
Weston,  
West Springfield,  
West Stockbridge,  
Westwood,  
Weymouth,  
Whately,  
Wilbraham,  
Williamsburg,  
Williamstown,  
Wilmington,  
Winchester,  
Winchendon,  
Windsor,  
Winthrop,  
Woburn,  
Worcester,  
Worthington,  
Wrentham.

This company also gives service in the States of Maine, New Hampshire and Vermont.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Thomas Sherwin, . . . . .	<i>Chairman, Board of Directors.</i>
Jasper N. Keller, . . . . .	<i>President.</i>
Henry S. Hyde, . . . . .	<i>Vice-President.</i>
Francis A. Houston, . . . . .	<i>Vice-President and General Manager.</i>
William J. Denver, . . . . .	<i>Assistant General Manager.</i>
William R. Driver, . . . . .	<i>Treasurer.</i>
Edmund S. Willard, . . . . .	<i>Assistant Treasurer.</i>
Matt B. Jones, . . . . .	<i>Counsel.</i>
Edmund W. Longley, . . . . .	<i>Secretary, General Auditor.</i>
Leslie D. Knowlton, . . . . .	<i>Auditor of disbursements.</i>
Ralph B. Jones, . . . . .	<i>Auditor of receipts.</i>
Fred W. Story, . . . . .	<i>Assistant to the Vice-President.</i>
Edward A. Wilkie, . . . . .	<i>Recorder.</i>

## DIRECTORS AND RESIDENCES.

Charles F. Ayer, . . . . .	Boston, Mass.
Charles E. Cotting, <sup>1</sup> . . . . .	Boston, Mass.
Union N. Bethell, . . . . .	Montclair, N. J.
John H. Cahill, . . . . .	New York, N. Y.
William J. Denver, . . . . .	Roxbury, Mass.
Francis H. Dewey, . . . . .	Worcester, Mass.
William H. Elliot, . . . . .	Keene, N. H.
Edward J. Hall, . . . . .	Morristown, N. J.
Henry S. Hyde, . . . . .	Springfield, Mass.
Matt B. Jones, . . . . .	Newton, Mass.
Jasper N. Keller, . . . . .	Surry, N. H.
Moses G. Parker, . . . . .	Lowell, Mass.
Thomas Sherwin, . . . . .	Jamaica Plain, Mass.
Charles H. Wilson, . . . . .	New York, N. Y.
Theodore N. Vail, . . . . .	Lyndonville, Vt.

## CAPITAL.

Capital authorized by articles of association, and increased from time to time under the general laws, . . . . .	\$50,000,000 00
Capital authorized by vote of company, . . . . .	39,178,100 00
Capital paid in, 391,781 shares; par value, \$100, . . . . .	39,178,100 00
Whole number of stockholders, . . . . .	4,147
Number of stockholders resident in Massachusetts, . . . . .	3,636
Amount of stock held in Massachusetts, not including stock held by "Parent Co." (shares), . . . . .	149,522
Amount of stock held by parent telephone company (shares), . . . . .	228,837

<sup>1</sup> Elected July 16, 1912.

## DEBTS.

Bonds or notes issued, viz.: —

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
<i>Bonds.</i>				
April 1, 1891	April 1, 1936	Debenture, . . . . .	None.	\$5,000 00
April 1, 1895	April 1, 1915	Debenture, . . . . .	5	500,000 00
April 1, 1896	April 1, 1916	Debenture, . . . . .	5	500,000 00
April 1, 1899	April 1, 1919	Debenture, . . . . .	5	500,000 00
Jan. 1, 1900	Jan. 1, 1930	Debenture, . . . . .	4	1,000,000 00
<i>Notes.</i>				
May 14, 1912	Sept. 16, 1912	- - - - -	3½	3,000,000 00
May 9, 1912	Demand.	- - - - -	5	12,000 00
June 26, 1912	Sept. 26, 1912	- - - - -	3½	250,000 00
June 26, 1912	Sept. 26, 1912	- - - - -	4	250,000 00
Total amount of bonds and notes, . . . . .				\$6,017,000 00
Capital paid in, . . . . .				39,173,100 00
Total liability for capital and loans, . . . . .				\$45,195,100 00

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross telephone revenue, <sup>1</sup> . . . . .		\$14,239,387 92
Less rebates and discounts, . . . . .		17,038 74
Telephone revenue, . . . . .		\$14,222,349 18
Operation, . . . . .	\$5,648,561 74	
Current maintenance, . . . . .	2,020,154 54	
Depreciation, . . . . .	2,664,003 49	
Total expenses, not including taxes, . . . . .		10,332,719 77
Net telephone earnings, . . . . .		\$3,889,629 41
Miscellaneous income, . . . . .		329,262 54
Total income above expenses, . . . . .		\$4,218,891 95
Interest charges and taxes: —		
Interest on funded debt, . . . . .	\$115,000 00	
Interest on floating debt, . . . . .	81,254 83	
Taxes, . . . . .	878,663 08	
Total charges, . . . . .		1,074,917 91
Surplus of net income above charges, . . . . .		\$3,143,974 04
Amount carried forward, . . . . .		\$3,143,974 04

<sup>1</sup> Gross telephone revenue and income in Massachusetts: —

Gross telephone revenue, . . . . .	\$11,800,192 16
Less rebates and discounts, . . . . .	6,000 49
Telephone revenue, . . . . .	\$11,794,191 67
Miscellaneous income, . . . . .	274,307 71
Total telephone revenue and income, . . . . .	\$12,068,499 38

	Items.	Totals.
<i>Amount brought forward,</i>		\$3,143,974 04
Dividends declared:—		
7 per cent. on \$39,178,100,		2,742,467 00
Surplus for year ending June 30, 1912,		\$401,507 04
Depreciation stocks and bonds,	\$89,280 88	
To provide for retired pay account,	100,000 00	
		189,280 88
		\$212,226 16

## EARNINGS (WHOLE SYSTEM).

## Gross telephone revenue:—

## Exchange service:—

Subscribers' stations,	\$10,095,249 67	
Pay stations,	799,046 28	
Attachments and rentals,	32,829 53	
Miscellaneous exchange earnings,	15,346 11	
Total exchange service,		\$10,942,471 59

## Toll service:—

Toll service,	\$3,119,654 54	
Attachments and rentals,	58,966 87	
Messenger service,	148 04	
Total toll service,		3,178,769 45

## Private line:—

Rental instruments and equipment,		57,738 34
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## Sub licensee:—

Rental instruments and equipments,		60,408 54
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Total gross telephone revenue,		\$14,239,387 92
Less rebates and discounts,		17,038 74

Telephone revenue,		\$14,222,349 18
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## Miscellaneous income:—

Real estate revenue,	\$10,690 67	
Dividends on stocks of other companies,	102,352 52	
Interest on bonds and notes and running accounts,	184,913 69	
Interest on bank deposits,	25,807 44	
Sales and job work above field cost,	5,498 22	
Total miscellaneous income,		329,262 54

Total telephone revenue and income,		\$14,551,611 72
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## EXPENSES (WHOLE SYSTEM).

## Operation:—

## General:—

Executive department,	\$135,395 26	
Accounting department,	90,367 45	
Financial department,	35,677 59	
Legal department,	76,142 24	
Total general,		\$337,582 54

<i>Amount carried forward,</i>		\$337,582 54
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	Items.	Totals.
<i>Amount brought forward,</i>		\$337,582 54
Commercial:—		
Commercial supervision,	\$256,952 20	
Advertising,	82,543 18	
Canvassing,	242,998 64	
Directory,	170,824 72	
Revenue accounting,	282,576 01	
Revenue collecting,	348,984 83	
Pay-station commissions,	207,299 25	
Sub licensee relations,	36,469 22	
Uncollectible accounts,	148,890 04	
Total commercial,		1,777,538 09
Traffic:—		
Traffic supervision,	\$256,132 83	
Service inspection,	77,423 62	
Operators' wages,	1,691,793 42	
Operating clerical wages,	84,387 57	
Rest and lunch rooms,	64,462 96	
Operators' schooling,	65,546 74	
Central office rent,	249,818 66	
Pay-station expense,	49,066 04	
Other operating expenses,	134,077 02	
Total traffic,		2,672,708 86
Rights, privileges and use of property:—		
Rental of instruments,	\$633,145 98	
Conduit, pole and other space,	178,899 56	
Total rights, privileges and use of property,		812,045 54
Insurance,		48,686 71
Total operation,		\$5,648,561 74
Maintenance:—		
Repairs:—		
Supervision,	\$170,237 19	
Aërial plant,	579,361 53	
Underground plant,	147,239 55	
Central office equipment,	311,391 87	
Subscribers' equipment,	403,836 35	
Real estate,	6,984 09	
Total repairs,	\$1,619,050 58	
Station removals and changes,	401,103 96	
Total current maintenance,		2,020,154 54
Depreciation of plant,		2,664,003 49
Total expenses not including taxes,		\$10,332,719 77

## GENERAL BALANCE SHEET.

*Assets.*

## Exchange construction:—

Right of way,	\$424,641 71	
Overhead lines,	9,428,428 36	
Underground lines,	9,472,376 82	
Submarine lines,	41,499 81	
Central office equipment,	5,789,231 49	
Subscribers' station equipment,	6,443,704 49	
Total exchange construction and equipment,		\$31,599,882 68
<i>Amount carried forward,</i>		\$31,599,882 68



	Items.	Totals.
<i>Amount brought forward,</i>		\$31,599,882 68
<b>Toll construction:—</b>		
Right of way,	\$391,717 86	
Overhead lines,	6,332,594 97	
Underground lines,	4,960,562 53	
Submarine lines,	61,864 33	
Total toll construction,		11,746,739 69
Construction in process,		2,401,906 59
Real estate required for operation,		2,564,580 66
Investment real estate not required for operation,		111,118 92
Office furniture and fixtures,		370,409 18
Tools and vehicles,		397,283 47
Total plant account,		\$49,191,921 19
Treasury bonds,		66,000 00
Securities of other companies,		2,439,111 64
<b>Current assets:—</b>		
Cash on hand,	\$1,048,247 88	
Notes receivable,	2,760,931 67	
Accounts receivable,	\$2,562,465 60	
Less reserve for uncollectible accounts,	161,801 18	
		2,400,664 42
Supplies on hand,	1,613,973 81	
Unexpired insurance,	33,100 43	
Interest prepaid,	31,054 79	
Stable and garage expenses prepaid,	1,276 34	
Supply expenses prepaid,	1,580 77	
Total current assets,		7,890,830 11
Total debits,		\$59,587,862 94
<b>Liabilities.</b>		
Capital stock,		\$39,178,100 00
Bonded debt,		2,505,000 00
<b>Current liabilities:—</b>		
Loans and notes payable,	\$3,512,000 00	
Audited vouchers and accounts,	1,033,686 74	
Salaries and wages, unpaid,	46,709 97	
Dividends not called for,	5,555 25	
Matured interest coupons, unpaid,	2,670 00	
Unearned subscribers' rentals,	47,421 16	
Unearned tolls,	491 58	
Total current liabilities,		4,648,534 70
<b>Accrued liabilities:—</b>		
Interest accrued but not due,	\$38,836 61	
Taxes accrued but not due,	429,245 24	
Directory,	15,909 77	
Total accrued liabilities,		483,991 62
<i>Amount carried forward,</i>		\$46,815,626 32

	Items.	Totals.
<i>Amount brought forward,</i> . . . . .		\$46,815,626 32
Sinking and other special funds:—		
Depreciation, . . . . .	\$6,729,000 57	
Fire insurance, . . . . .	250,063 72	
Accident insurance, . . . . .	154,066 09	
Bond discount, . . . . .	5,873 69	
Retired pay account, . . . . .	100,000 00	
To meet plant supervision and expense, . . . . .	1,539 41	
		<hr/> 7,240,543 48
1908 inventory adjustment, . . . . .		1,640,155 49
		<hr/>
Total liabilities, . . . . .		\$55,696,325 29
Balance, surplus, . . . . .		3,891,537 65
		<hr/>
Total credits, . . . . .		\$59,587,862 94

PROFIT AND LOSS ACCOUNT.		Dr.	Cr.
Balance from previous year, . . . . .			\$3,679,311 49
Gross telephone revenue, . . . . .			14,239,387 92
Real estate revenue, . . . . .			10,690 67
Dividends received on stock owned by company, . . . . .			102,352 52
Interest received on bonds and notes, . . . . .			152,937 47
Interest on running accounts, . . . . .			29,226 22
Interest on bank balances, . . . . .			25,807 44
Interest on N. E. T. & T. Co. treasury bonds, . . . . .			2,750 00
Sales and job work, . . . . .			5,498 22
Expenses, not including taxes, . . . . .	\$10,332,719 77		
Rebates and discounts, . . . . .	17,038 74		
Interest on funded debt, . . . . .	115,000 00		
Interest on floating debt, . . . . .	81,254 83		
Taxes, . . . . .	878,663 08		
For depreciation, stocks and bonds, . . . . .	89,280 88		
To provide for a retired pay account, . . . . .	100,000 00		
Dividends declared on stock, . . . . .	2,742,467 00		
Balance, surplus, . . . . .	3,891,537 65		
		<hr/>	<hr/>
		\$18,247,961 95	\$18,247,961 95

## PLANT ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

<i>Additions.</i>	Items.	Totals.
Exchange construction:—		
Right of way, . . . . .	\$20,043 48	
Overhead lines, . . . . .	1,146,162 72	
Underground lines, . . . . .	1,150,549 15	
Submarine lines, . . . . .	1,440 69 <sup>1</sup>	
Central office equipment, . . . . .	1,174,229 51	
Subscribers' station equipment, . . . . .	621,075 78	
Total exchange construction and equipment, . . . . .		<hr/> \$4,110,619 95
Toll construction:—		
Right of way, . . . . .	\$68,124 20	
Overhead lines, . . . . .	330,521 28	
Underground lines, . . . . .	136,741 11	
Submarine lines, . . . . .	6,508 86	
Total toll construction, . . . . .		<hr/> 541,895 45
<i>Amount carried forward,</i> . . . . .		\$4,652,515 40

<sup>1</sup> Credit item.

	Items.	Totals.
<i>Amount brought forward,</i>		\$4,652,515 40
Construction in process,		1225,056 97
Real estate required for operation,		478,288 53
Investment real estate not required for operation,		296 25
Office furniture and fixtures,		73,693 88
Tools and vehicles,		105,885 10
Total additions,		\$5,085,622 19
<i>Deductions.</i>		
Property sold:—		
Exchange overhead lines,	\$48,053 79	
Exchange underground lines,	479 16	
Central office equipment,	12,432 22	
Subscribers' station equipment,	26,726 54	
Toll overhead lines,	40,502 74	
Toll underground lines,	12,854 39	
Toll submarine lines,	4,073 12	
Real estate,	6,692 21	
Total deductions,		151,814 17
Net additions to plant account for the year,		\$4,933,808 02

## STATISTICAL INFORMATION.

	Boston and Suburban Division.	Massa- chusetts, Outside Boston and Suburban Division.	All Massa- chusetts.	Outside of Massa- chusetts.	Whole System.
Number of subscribers,	104,687	99,902	204,589	61,677	266,266
Number of stations,	145,484	123,154	268,638	71,157	339,795
Number of operators,	2,123	1,161	3,284	695	3,979
Number of pay stations,	4,221	3,244	7,465	1,898	9,363
Number of subscribers on party lines,	65,933	68,938	134,871	50,549	185,420
Number of subscribers on single lines,	38,754	30,964	69,718	11,128	80,846
Underground system:—					
Conduit, feet,	1,697,042	1,549,869	3,246,911	390,098	3,637,009
Duct, feet,	9,832,677	6,337,042	16,169,719	1,670,447	17,840,166
Cable, feet,	4,848,971	3,424,264	8,273,235	980,015	9,253,250
Wire, miles,	304,313	182,842	487,155	56,175	543,330
Submarine system:—					
Cable, feet,	22,263	10,032	32,295	100,925	133,220
Wire, miles,	666	220	886	652	1,538
Overhead system:—					
Pole line, miles,	1,175	5,933	7,108	9,141	16,249
Iron wire, miles,	1,668	29,178	30,846	33,211	69,057
Copper wire, miles,	66,107	90,983	157,090	79,108	236,198

## GENERAL REMARKS AND EXPLANATIONS.

"The revenue within the State which is here reported is the revenue which has been collected within the State of Massachusetts. No deduction has been made for such portion of tolls as were collected within the State, but transmitted partly over lines lying without the State. Neither has the separation been made of tolls originating at points outside of the territory of the New England Telephone and Telegraph Company but terminating at points within such territory.

"If such separation were made, it would probably show that a considerable sum collected within the State of Massachusetts had been earned on toll lines located outside of that State."

## PROVIDENCE TELEPHONE COMPANY OF MASSACHUSETTS.

Location of principal business office: 125 Milk Street, Boston, Mass.

Date of organization: Dec. 2, 1890.

Date of incorporation: Feb. 24, 1891.

State in which incorporated: Massachusetts.

Date of annual meeting: first Tuesday in December.

Date when company began to give service: April 28, 1891.

Service is given by this company over its own lines in the towns of

Attleborough,	North Attleborough,	Rehoboth,
Bellingham,	Norton,	Seekonk,
Blackstone,	Plainville,	Swansea.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Dexter B. Potter,	.	.	.	.	.	<i>President.</i>
Charles T. Howard,	.	.	.	.	.	<i>Treasurer.</i>
Joseph F. Beck,	.	.	.	.	.	<i>General Manager.</i>
Robert W. Devonshire,	.	.	.	.	.	<i>Clerk.</i>

## DIRECTORS AND RESIDENCES.

Dexter B. Potter,	.	.	.	.	.	Providence, R. I.
Charles T. Howard,	.	.	.	.	.	Coventry, R. I.
Joseph F. Beck,	.	.	.	.	.	Providence, R. I.
Robert W. Devonshire,	.	.	.	.	.	Boston, Mass.
Thomas Sherwin,	.	.	.	.	.	Boston, Mass.

## CAPITAL.

Capital authorized by charter,	.	.	.	.	.	\$10,000 00
Capital authorized by vote of company,	.	.	.	.	.	80,000 00
Capital paid in, 800 shares; par value, \$100,	.	.	.	.	.	80,000 00

Whole number of stockholders,	.	.	.	.	.	6
Number of stockholders resident in Massachusetts,	.	.	.	.	.	2
Amount of stock held in Massachusetts (shares),	.	.	.	.	.	2
Amount of stock held by parent telephone company (shares),	.	.	.	.	.	795

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross telephone revenue,	.	\$69,800 70
Operation,	\$30,092 72	
Current maintenance,	11,847 47	
Depreciation,	13,800 00	
Total expenses, not including taxes,		55,740 19
Net telephone earnings,	.	\$14,060 51
Miscellaneous income,	.	473 70
Total income above expenses,	.	\$14,534 21
Interest charges and taxes:—		
Interest on floating debt,	\$987 99	
Taxes,	2,102 70	
Total charges,		3,090 69
Surplus of net income above charges,	.	\$11,443 52
Dividends declared:—		
6 per cent. on \$80,000,	.	4,800 00
Surplus for year ending June 30, 1912,	.	\$6,643 52

## EARNINGS.

## Gross telephone revenue:—

Exchange service:—	Items.	Totals.
Subscribers' stations . . . . .	\$56,784 72	
Pay stations, . . . . .	1,642 80	
Attachments and rentals, . . . . .	88 62	
Miscellaneous exchange earnings, . . . . .	117 20	
Total exchange service, . . . . .	<hr/>	\$58,633 34
Toll service:—		
Toll service, . . . . .		11,114 86
Private line:—		
Rental instruments and equipment, . . . . .		52 50
		<hr/>
Total gross telephone revenue, . . . . .		\$69,800 70
Miscellaneous income:—		
Interest, . . . . .		473 70
		<hr/>
Total telephone revenue and income, . . . . .		\$70,274 40

## EXPENSES.

## Operation:—

## General:—

Executive department, . . . . .	\$1,287 43	
Accounting department, . . . . .	245 19	
Financial department, . . . . .	227 01	
Total general, . . . . .	<hr/>	\$1,759 63

## Commercial:—

Commercial supervision, . . . . .	\$1,931 81	
Advertising, . . . . .	152 15	
Canvassing, . . . . .	50 96	
Directory, . . . . .	1,838 72	
Revenue accounting, . . . . .	2,319 18	
Revenue collecting, . . . . .	2,444 27	
Pay-station commissions, . . . . .	941 32	
Uncollectible accounts, . . . . .	1,623 11	
Total commercial, . . . . .	<hr/>	11,301 52

## Traffic:—

Traffic supervision, . . . . .	\$1,421 70	
Operators' wages, . . . . .	9,218 93	
Operating clerical wages, . . . . .	354 50	
Central office rent, . . . . .	1,682 50	
Pay-station expense, . . . . .	44 00	
Other operating expenses, . . . . .	554 61	
Total traffic, . . . . .	<hr/>	13,276 24

## Rights, privileges and use of property:—

Rental of instruments, . . . . .	\$3,035 90	
Conduit, pole and other space, . . . . .	457 07	
Total rights, privileges and use of property, . . . . .	<hr/>	3,492 97

Insurance, . . . . .		262 36
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Total operation, . . . . .	<hr/>	\$30,092 72
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Amount carried forward, . . . . .		\$30,092 72
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	Items.	Totals.
<i>Amount brought forward,</i>		\$30,092 72
Maintenance:—		
Repairs:—		
Supervision,	\$2,054 85	
Aërial plant,	3,645 78	
Underground plant,	265 38	
Central office equipment,	2,227 56	
Subscribers' equipment,	2,133 47	
Real estate,	80 61	
Total repairs,	\$10,407 65	
Station removals and changes,	1,439 82	
Total current maintenance,		11,847 47
Depreciation of plant,		13,800 00
Total expenses, not including taxes,		\$55,740 19

## GENERAL BALANCE SHEET.

*Assets.*

Exchange construction:—		
Overhead lines,	\$40,329 29	
Underground lines,	49,221 31	
Central office equipment,	15,843 38	
Subscribers' station equipment,	20,041 40	
Total exchange construction and equipment,		\$125,435 38
Toll construction:—		
Overhead lines,	\$14,827 03	
Underground lines,	5,769 42	
Total toll construction,		20,596 45
Construction in process,		1,180 62
Tools and vehicles,		507 48
Total plant account,		\$147,719 93
Current assets:—		
Cash on hand,	\$7,034 14	
Accounts receivable,	6,167 67	
Supplies on hand,	1,110 70	
Unexpired insurance,	54 00	
Prepaid tax,	428 76	
Total current assets,		14,795 27
Total debits,		\$162,515 20

*Liabilities.*

Capital stock,		\$80,000 00
Current liabilities:—		
Audited vouchers and accounts,	\$12,016 90	
Salaries and wages unpaid,	346 57	
Unearned subscribers' rentals:—		
Private lines,	18 07	
Total current liabilities,		12,381 54
<i>Amount carried forward,</i>		\$92,381 54.

	Items.	Totals.
<i>Amount brought forward,</i>		\$92,381 54
Sinking and other special funds:—		
Reserve for doubtful accounts,	\$1,826 07	
Reserve for depreciation,	38,635 84	
Reserve for extraordinary repairs,	831 69	
Total sinking and other special funds,		41,293 60
Total liabilities,		\$133,675 14
Balance, surplus,		28,840 06
Total credits,		\$162,515 20

PROFIT AND LOSS ACCOUNT.		Dr.	Cr.
Balance from previous year,			\$21,469 69
Gross telephone revenue,			69,800 70
Miscellaneous income,			473 70
Settlement old accounts,			726 85
Expenses, not including taxes,	\$55,740 19		
Interest on floating debt,	987 99		
Taxes,	2,102 70		
Dividends declared on stock,	4,800 00		
Balance, surplus,	28,840 06		
	\$92,470 94	\$92,470 94	

## PLANT ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

*Additions.*

	Items.	Totals.
Exchange construction:—		
Overhead lines,	\$13,411 26	
Underground lines,	14,535 59	
Central office equipment,	34 06	
Subscribers' station equipment,	4,570 56	
Total exchange construction and equipment,		\$32,551 47
Toll construction:—		
Overhead lines,	\$238 03	
Underground lines,	1,531 19	
Total toll construction,		1,769 22
Construction in process,		1,180 62
Tools and vehicles,		507 48
Total additions,		\$36,008 79

*Deductions.*

Exchange overhead lines,	\$10,060 40	
Exchange underground lines,	45 77	
Toll overhead lines,	3,951 95	
Central office equipment,	1,178 32	
Subscribers' station equipment,	9,863 64	
Total deductions,		25,100 08
Net additions to plant account for the year,		\$10,908 71

## STATISTICAL INFORMATION.

Number of subscribers,	2,084
Number of instruments,	2,333
Number of operators,	25
Number of pay stations,	36
Number of subscribers on party lines,	1,965
Number of subscribers on single lines,	119

## Underground system:—

Conduit, feet, . . . . .	32,841.6
Duct, feet, . . . . .	72,916.8
Cable, feet, . . . . .	43,823
Wire, feet, . . . . .	11,541,393

## Overhead system:—

Pole line, miles, . . . . .	78.09
Iron wire, miles, . . . . .	537.49
Copper wire, miles, . . . . .	1,063.35

## THE SOUTHERN MASSACHUSETTS TELEPHONE COMPANY.

Location of principal business office: 50 Oliver Street, Boston, Mass.

Date of organization: Feb. 17, 1880.

Date of incorporation: Feb. 17, 1880.

State in which incorporated: Massachusetts.

Date of annual meeting: second Saturday in February.

Date when company began to give service: February, 1880.

Cities and towns in Massachusetts in which service is given by the company over its own lines:—

Abington,	Falmouth,	Pembroke,
Acushnet,	Freetown,	Plymouth,
Avon,	Gay Head,	Plympton,
Barnstable,	Halifax,	Provincetown,
Berkley,	Hanover,	Raynham,
Bourne,	Hanson,	Rehoboth,
Brewster,	Harwich,	Rochester,
Bridgewater,	Holbrook,	Rockland,
Brockton,	Kingston,	Sandwich,
Carver,	Lakeville,	Scituate,
Chatham,	Mansfield,	Somerset,
Chilmark,	Marion,	Swansea,
Dartmouth,	Marshfield,	Taunton,
Dennis,	Mashpee,	Tisbury,
Dighton,	Mattapoisett,	Truro,
Duxbury,	Middleborough,	Wareham,
East Bridgewater,	Nantucket,	Wellfleet,
Eastham,	New Bedford,	West Bridgewater,
Easton,	Norton,	Westport,
Edgartown,	Norwell,	West Tisbury,
Fairhaven,	Oak Bluffs,	Whitman,
Fall River,	Orleans,	Yarmouth.

This company also gives service in the State of Rhode Island.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Thomas Sherwin, . . . . .	<i>President.</i>
Jasper N. Keller, . . . . .	<i>Vice-President.</i>
Francis A. Houston, . . . . .	<i>General Manager.</i>
William J. Denver, . . . . .	<i>Assistant General Manager.</i>
William R. Driver, . . . . .	<i>Treasurer.</i>
Edmund S. Willard, . . . . .	<i>Assistant Treasurer.</i>
Edmund W. Longley, . . . . .	<i>Clerk, General Auditor.</i>
Leslie D. Knowlton, . . . . .	<i>Auditor of Disbursements.</i>
Ralph P. Jones, . . . . .	<i>Auditor of Receipts.</i>
Webster A. Arey, . . . . .	<i>Assistant Auditor.</i>



## DIRECTORS AND RESIDENCES.

Charles F. Ayer, . . . . .	Boston, Mass.
Charles W. Clifford, . . . . .	New Bedford, Mass.
Theodore N. Vail, . . . . .	Lyndonville, Vt.
Jasper N. Keller, . . . . .	Surry, N. H.
Moses G. Parker, . . . . .	Lowell, Mass.
Thomas Sherwin, . . . . .	Jamaica Plain, Mass.
Francis A. Houston, . . . . .	Concord, Mass.

## CAPITAL.

Capital authorized by charter and increased under the general law,	\$600,000 00
Capital authorized by vote of company, . . . . .	600,000 00
Capital paid in, 6,000 shares; par value, \$100, . . . . .	600,000 00

Whole number of stockholders, . . . . .	10
Number of stockholders resident in Massachusetts, . . . . .	7
Amount of stock held in Massachusetts (shares), . . . . .	51
Amount of stock held by parent telephone company (shares), . . . . .	5,938

## DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
June 1, 1896	June 1, 1916	Debenture, <i>Bonds.</i> . . . .	5	\$200,000 00
Dec. 30, 1911	Demand, .	- <i>Note.</i> -	6	2,200,000 00
Total amount of bonds and notes, . . . . .				\$2,400,000 00
Capital paid in, . . . . .				600,000 00
Total liability for capital and loans, . . . . .				\$3,000,000 00

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross telephone revenue, <sup>1</sup> . . . . .		\$1,056,410 90
Less rebates and discounts, . . . . .		543 26
Telephone revenue, . . . . .		\$1,055,867 64
<i>Amount carried forward,</i> . . . . .		\$1,055,867 64

<sup>1</sup> Telephone revenue and income in Massachusetts:—

Gross telephone revenue, . . . . .	\$1,041,515 79
Less rebates and discounts, . . . . .	543 26
Telephone revenue, . . . . .	\$1,040,972 53
Miscellaneous income, . . . . .	677 11
Total telephone revenue and income, . . . . .	\$1,041,649 64

	Items.	Totals.
<i>Amount brought forward,</i>		\$1,055,867 64
Operation,	\$422,209 08	
Current maintenance,	187,749 93	
Depreciation, <sup>1</sup>	245,955 90	
Total expenses, not including taxes,		855,814 91
Net telephone earnings,		\$200,052 73
Miscellaneous income,		684 77
Total income above expenses,		\$200,737 50
Interest charges and taxes:—		
Interest on funded debt,	\$10,000 00	
Interest on floating debt,	134,735 78	
Taxes,	20,064 26	
Total charges,		164,800 04
Surplus of net income above charges,		\$35,937 46
Dividends declared:—		
7 per cent. on \$600,000,		42,000 00
Deficit for year ending June 30, 1912,		\$6,062 54

## EARNINGS (WHOLE SYSTEM).

## Gross telephone revenue:—

Exchange service:—		
Subscribers' stations,	\$728,906 97	
Pay stations,	30,028 82	
Attachments and rentals,	2,398 10	
Miscellaneous exchange earnings,	1,420 82	
Total exchange service,		\$762,754 71
Toll service:—		
Toll service,	\$288,534 36	
Attachments and rentals,	3,171 07	
Total toll service,		291,705 43
Private line:—		
Rental instruments and equipment,		1,950 76
Total gross telephone revenue,		\$1,056,410 90
Less rebates and discounts,		543 26
Telephone revenue,		\$1,055,867 64
Miscellaneous income:—		
Interest on bank deposits,	\$524 59	
Sales and job work,	160 18	
Total miscellaneous income,		684 77
Total telephone revenue and income,		\$1,056,552 41

<sup>1</sup> "The fiscal year of this company is January 1 to December 31. In December, 1911, certain charges were made for depreciation belonging correctly to the entire fiscal year. Probably \$7,500 of such charge made on the company's books in December, 1911, correctly belongs to the expenses of six months ending June 30, 1911, or during a period prior to the time covered by this report."

## EXPENSES (WHOLE SYSTEM).

## Operation:—

## General:—

	Items.	Totals.
Executive department, . . . . .	\$10,108 82	
Accounting department, . . . . .	6,771 56	
Financial department, . . . . .	2,655 16	
Legal department, . . . . .	5,574 92	
Total general, . . . . .	<hr/>	\$25,110 46

## Commercial:—

Commercial supervision, . . . . .	\$21,698 33	
Advertising, . . . . .	4,870 00	
Canvassing, . . . . .	37,151 50	
Directory, . . . . .	8,420 07	
Revenue accounting, . . . . .	23,021 88	
Revenue collecting, . . . . .	34,211 55	
Pay-station commissions, . . . . .	7,562 20	
Uncollectible accounts, . . . . .	4,577 42	
Total commercial, . . . . .	<hr/>	141,512 95

## Traffic:—

Traffic supervision, . . . . .	\$19,129 11	
Service inspection, . . . . .	5,466 01	
Operators' wages, . . . . .	122,318 32	
Operating clerical wages, . . . . .	7,430 21	
Rest and lunch rooms, . . . . .	3,217 09	
Operators' schooling, . . . . .	6,591 94	
Central office rent, . . . . .	14,601 29	
Pay-station expense, . . . . .	1,155 43	
Other operating expenses, . . . . .	12,522 22	
Total traffic, . . . . .	<hr/>	192,431 62

## Rights, privileges and use of property:—

Rental of instruments, . . . . .	\$45,877 25	
Conduit, pole and other space, . . . . .	14,777 02	
Total rights, privileges and use of property, . . . . .	<hr/>	60,654 27

Insurance, . . . . .		2,499 78
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Total operation, . . . . .		\$422,209 08
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## Maintenance:—

## Repairs:—

Supervision, . . . . .	\$14,815 48	
Aërial plant, . . . . .	64,467 37	
Underground plant, . . . . .	15,639 32	
Central office equipment, . . . . .	17,760 85	
Subscribers' equipment, . . . . .	28,652 48	
Real estate, . . . . .	1,126 69	
Total repairs, . . . . .	<hr/>	\$142,462 19
Station removals and changes, . . . . .	45,287 74	
Total current maintenance, . . . . .	<hr/>	187,749 93
Depreciation of plant, . . . . .		245,855 90

Total expenses, not including taxes, . . . . .		\$855,814 91
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## GENERAL BALANCE SHEET.

*Assets.*

	Items.	Totals.
Exchange construction:—		
Right of way, . . . . .	\$66,827 60	
Overhead lines, . . . . .	1,354,763 79	
Underground lines, . . . . .	894,704 00	
Submarine lines, . . . . .	5,984 08	
Central office equipment, . . . . .	417,506 08	
Subscribers' station equipment, . . . . .	566,621 35	
Total exchange construction and equipment, —————		\$3,306,406 90
Toll construction:—		
Right of way, . . . . .	\$19,634 45	
Overhead lines, . . . . .	562,141 40	
Underground lines, . . . . .	165,994 94	
Submarine lines, . . . . .	15,777 84	
Total toll construction, . . . . .		763,548 63
Construction in process, . . . . .		278,136 21
Real estate required for operation, . . . . .		164,986 64
Office furniture and fixtures, . . . . .		25,245 60
Tools and vehicles, . . . . .		43,068 27
		<hr/>
Total plant account, . . . . .		\$4,581,392 25
Securities of other companies, . . . . .		90 00
Current assets:—		
Cash on hand, . . . . .	\$75,518 65	
Notes receivable, . . . . .	5 72	
Accounts receivable, . . . . .	\$154,366 29	
Less reserve for uncollectible accounts, . . . . .	20,072 43	
	<hr/>	134,293 86
Supplies on hand, . . . . .	116,065 51	
Unexpired insurance, . . . . .	1,993 37	
Directory prepaid, . . . . .	460 86	
Supply expenses prepaid, . . . . .	261 82	
Plant supervision expenses prepaid, . . . . .	1,025 97	
Total current assets, . . . . .		<hr/> 329,625 76
Total debits, . . . . .		<hr/> \$4,911,108 01

*Liabilities.*

Capital stock, . . . . .		\$600,000 00
Bonded debt, . . . . .		200,000 00
Current liabilities:—		
Loans and notes payable, . . . . .	\$2,200,000 00	
Audited vouchers and accounts, . . . . .	345,976 99	
Salaries and wages, unpaid, . . . . .	4 17	
Matured interest coupons, unpaid, . . . . .	1,800 00	
Unearned subscribers' rentals, . . . . .	5,263 35	
Total current liabilities, . . . . .		<hr/> 2,553,044 51
Accrued liabilities:—		
Interest accrued but not due, . . . . .	\$833 35	
Taxes accrued but not due, . . . . .	9,512 52	
Total accrued liabilities, . . . . .		<hr/> 10,345 87
Amount carried forward, . . . . .		<hr/> \$3,363,390 38

	Items.	Totals.
<i>Amount brought forward,</i>		\$3,363,390 38
Sinking and other special funds: —		
Depreciation,	\$427,098 34	
Fire insurance,	30,354 18	
Accident insurance,	8,525 18	
To meet stable and garage expenses,	690 36	
		466,668 06
1908 inventory adjustment,		862,159 01
Total liabilities,		\$4,692,217 45
Balance, surplus,		218,890 56
Total credits,		\$4,911,108 01

## PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$224,953 10
Gross telephone revenue,		1,056,410 90
Miscellaneous income,		684 77
Expenses, not including taxes,	\$855,814 91	
Rebates and discounts,	543 26	
Interest on funded debt,	10,000 00	
Interest on floating debt,	134,735 78	
Taxes,	20,064 26	
Dividends declared on stock: —		
1½ per cent., due Sept. 30, 1911,	10,500 00	
1½ per cent., due Dec. 30, 1911,	10,500 00	
1½ per cent., due March 30, 1912,	10,500 00	
1½ per cent., due June 29, 1912,	10,500 00	
Balance, surplus,	218,890 56	
	\$1,282,048 77	\$1,282,048 77

## PLANT ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

*Additions.*

	Items.	Totals.
Exchange construction: —		
Right of way,	\$5,956 56	
Overhead lines,	197,052 44	
Underground lines,	82,076 03	
Submarine lines,	1,058 98	
Central office equipment,	94,325 72	
Subscribers' station equipment,	58,951 92	
Total exchange construction and equipment,		\$439,421 65
Toll construction: —		
Right of way,	\$752 86	
Overhead lines,	22,430 88	
Underground lines,	932 78	
Submarine lines,	120 11	
Total toll construction,		24,096 41
Construction in process,		12,474 61
Real estate required for operation,		23,843 43
Office furniture and fixtures,		8,087 77
Tools and vehicles,		10,899 83
Total additions,		\$503,874 48
<i>Amount carried forward,</i>		\$503,874 48

	Items.	Totals.
<i>Amount brought forward,</i> . . . . .		\$503,874 48
<i>Deductions.</i>		
Property sold:—		
Exchange construction:—		
Overhead lines, . . . . .	\$2 24	
Central office equipment, . . . . .	14 00	
Subscribers' station equipment, . . . . .	35 00	
Toll construction:—		
Overhead lines, . . . . .	4 49	
Total deductions, . . . . .		55 73
Net additions to plant account for the year, . . . . .		\$503,818 75

## STATISTICAL INFORMATION.

	In Massachusetts.	Outside Massachusetts.	Whole System.
Number of subscribers, . . . . .	26,935	315	27,250
Number of stations, . . . . .	32,284	326	32,610
Number of operators, . . . . .	299	—	299
Number of pay stations, . . . . .	1,155	17	1,172
Number of subscribers on party lines, . . . . .	20,007	285	20,292
Number of subscribers on single lines, . . . . .	6,928	30	6,958
Underground system:—			
Conduit, feet, . . . . .	346,920	—	346,920
Duct, feet, . . . . .	1,526,993	—	1,526,993
Cable, feet, . . . . .	696,353	—	696,353
Wire, miles, . . . . .	36,914	—	36,914
Submarine system:—			
Cable, feet, . . . . .	24,694	7,298	31,992
Wire, miles, . . . . .	169	66	235
Overhead system:—			
Pole line, miles, . . . . .	1,952	60	2,012
Iron wire, miles, . . . . .	11,808	433	12,241
Copper wire, miles, . . . . .	30,558	346	30,904

## NONOPERATING AND SMALL TELEPHONE COMPANIES.

## BEECHMONT INDEPENDENT TELEPHONE COMPANY.

Location of principal business office: East Windsor, Mass.

Date of organization: January, 1906.

Date of annual meeting: the last Saturday in June.

Date when company began to give service: February, 1906.

Service is given by this company over its own lines in the towns of Cummington, Peru and Windsor.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Archie L. Tower, . . . . .	<i>President.</i>
William R. Pierce, . . . . .	<i>Manager and Treasurer.</i>
Ada L. Pierce, . . . . .	<i>Secretary.</i>

## DIRECTORS AND RESIDENCES.

Archie L. Tower, . . . . .	East Windsor, Mass.
Wm. R. Pierce, . . . . .	East Windsor, Mass.
C. H. Ball, . . . . .	East Windsor, Mass.
O. D. Jacobs, . . . . .	East Windsor, Mass.
B. G. Shaw, . . . . .	East Windsor, Mass.
G. L. Miner, . . . . .	East Windsor, Mass.

## CAPITAL.

Capital paid in, . . . . .	\$500 00
Number of stockholders, . . . . .	6
Number of stockholders resident in Massachusetts, . . . . .	6

## EARNINGS AND EXPENSES.

Gross earnings, . . . . .	\$50 00
Expenses, . . . . .	20 00
Net earnings, . . . . .	\$30 00
Dividends, . . . . .	30 00
Surplus balance from last year, . . . . .	\$55 08
Surplus for year ending June 30, 1912, . . . . .	\$55 08

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$500 00
Notes and accounts receivable, . . . . .	5 58
Cash on hand, . . . . .	55 08
Total debits, . . . . .	\$560 66

*Liabilities.*

Capital stock, . . . . .	\$500 00
Other liabilities, . . . . .	5 58
Surplus, . . . . .	55 08
Total credits, . . . . .	\$560 66

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	8
Number of instruments, . . . . .	10
Number of subscribers on party lines, . . . . .	8
Overhead system:—	
Pole line, miles, . . . . .	5
Iron wire, miles, . . . . .	5

## BERNARDSTON AND GILL TELEPHONE COMPANY.

Location of principal business office: Bernardston, Mass.

Date when company began to give service: Feb. 1, 1903.

Service is given by this company over its own lines in the towns of Bernardston, Gill and Leyden.

## GENERAL OFFICERS.

A. H. and C. R. Nelson, . . . . . *Managers.*

## CAPITAL.

Capital paid in, . . . . .	\$4,000 00
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## EARNINGS AND EXPENSES.

Gross earnings, . . . . .	\$1,266 92
Expenses, . . . . .	473 58
Net earnings, . . . . .	\$793 34

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$4,000 00
Notes and accounts receivable, . . . . .	300 00
Supplies on hand, . . . . .	500 00
Total debits, . . . . .	\$4,800 00

*Liabilities.*

Capital stock, . . . . .	\$4,000 00
Balance, surplus, . . . . .	800 00
Total credits, . . . . .	\$4,800 00

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	112
Number of instruments, . . . . .	112
Number of operators, . . . . .	3
Number of pay stations, . . . . .	4
Number of subscribers on party lines, . . . . .	108
Number of subscribers on single lines, . . . . .	1
Overhead system: —	
Pole line, miles, . . . . .	43
Iron wire, miles, . . . . .	115

NOTE. — "Tolls went to operators for their fees, let it be whatever it is, probably amounting to about \$25 per month to them. A record is kept by the New England Telephone and Telegraph Company of the tolls, and must be returned by them."

## THE BOLTON TELEPHONE COMPANY.

Location of principal business office: Bolton, Mass.

Date of organization: January, 1906.

Date of incorporation: January, 1906.

State in which incorporated: Massachusetts.

Date of annual meeting: January 15.

Date when company began to give service: January, 1906.

Service is given by this company over its own lines in the town of Bolton.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Edward D. Emerson, . . . . .	<i>President.</i>
Franklin J. Hamblin, . . . . .	<i>Treasurer.</i>

## DIRECTORS AND RESIDENCES.

Edward D. Emerson, . . . . .	Bolton, Mass.
William E. Litchfield, . . . . .	Newton, Mass.
Franklin J. Hamblin, . . . . .	Bolton, Mass.



## CAPITAL.

Capital paid in, . . . . .	\$1,500 00
Number of stockholders, . . . . .	20
Number of stockholders resident in Massachusetts, . . . . .	20

## EARNINGS AND EXPENSES.

## Gross earnings: —

Exchange service, . . . . .	\$1,320 61
Toll service, . . . . .	349 25
Miscellaneous earnings, . . . . .	13 52
Total gross earnings, . . . . .	\$1,683 38
Expenses, . . . . .	1,404 58
Net earnings, . . . . .	\$278 80
Dividends, . . . . .	75 00
Surplus for year, . . . . .	\$203 80
Surplus balance from last year, . . . . .	1,559 82
	\$1,763 62
Miscellaneous charges to surplus, . . . . .	13 52
Surplus June 30, 1912, . . . . .	\$1,750 10

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$2,111 19
Notes and accounts receivable, . . . . .	81 25
Cash on hand, . . . . .	289 97
Reserve fund, . . . . .	839 86
Total debits, . . . . .	\$3,322 27

*Liabilities.*

Capital stock, . . . . .	\$1,500 00
Accounts payable, . . . . .	72 17
Balance, surplus, . . . . .	1,750 10
Total credits, . . . . .	\$3,322 27

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	77
Number of instruments, . . . . .	79
Number of operators, . . . . .	1
Number of pay stations, . . . . .	1
Number of subscribers on party lines, . . . . .	76
Number of subscribers on single lines, . . . . .	1
Overhead system: —	
Pole line, miles, . . . . .	22.5
Iron wire, miles, . . . . .	55

## CHELMSFORD TELEPHONE COMPANY.

Location of principal business office: Chelmsford, Mass.

Date of organization: Dec. 23, 1903.

Date of annual meeting: first Monday in January.

Date when company began to give service: Jan. 4, 1904.

Service is given by this company over its own lines in the town of Chelmsford.

## GENERAL OFFICER.

Joseph E. Warren, . . . . . *President, Clerk and Treasurer.*

## EARNINGS AND EXPENSES.

Gross earnings, . . . . .	\$8 00
Expenses, . . . . .	5 53
Net earnings, . . . . .	\$2 47

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$300 00
Supplies on hand, . . . . .	8 56
Cash on hand, . . . . .	4 69
Total debts, . . . . .	\$313 25

*Liabilities.*

Capital stock, . . . . .	\$300 00
Balance, surplus, . . . . .	13 25
Total credits, . . . . .	\$313 25

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	15
Number of instruments, . . . . .	18
Number of subscribers on party lines, . . . . .	15
Overhead system: —	
Pole line, miles, . . . . .	6
Iron wire, miles, . . . . .	12

NOTE. — "Each member owns his 'phone and does his inside wiring."

## COLUMBIA AND RENSSELAER TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: West Lebanon, N. Y.

Date of organization: March, 1894.

Date of incorporation: March, 1894.

State in which incorporated: New York.

Date of annual meeting: January 5.

Date when company began to give service: March, 1894.

Service is given by this company over its own lines in the town of Hancock, Mass., and in the State of New York.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Abner S. Haight,	. . . .	<i>President.</i>
Warren Fowler,	. . . .	<i>Vice-President and General Manager.</i>
Mary J. Fowler,	. . . .	<i>Secretary and Treasurer.</i>

## DIRECTORS AND RESIDENCES.

Abner S. Haight,	. . . .	61 Worth Street, New York, N. Y.
Warren Fowler,	. . . .	West Lebanon, New York.
Harriet E. Haight,	. . . .	New Lebanon Centre, New York.
Mary J. Fowler,	. . . .	West Lebanon, New York.
Austin D. Haight,	. . . .	New Lebanon Centre, New York.
May F. Fowler,	. . . .	West Lebanon, New York.
Warrena Fowler,	. . . .	West Lebanon, New York.

## CAPITAL.

Capital paid in,	. . . . .	\$30,000 00
Number of stockholders,	. . . . .	7
Number of stockholders resident in Massachusetts,	. . . . .	None.
Amount of bonds outstanding (mortgage),	. . . . .	\$1,500 00
Amount of notes outstanding,	. . . . .	1,500 00

## EARNINGS AND EXPENSES.

## Gross earnings:—

Exchange service, rental,	. . . . .	\$11,193 63
Toll service,	. . . . .	3,390 50
Miscellaneous earnings,	. . . . .	406 69
Total gross earnings,	. . . . .	\$14,990 82
Expenses,	. . . . .	10,804 76
Net earnings,	. . . . .	\$4,186 06
Interest payments,	. . . . .	64 75
Net profit,	. . . . .	\$4,121 31
Dividends,	. . . . .	1,200 00
Surplus for year,	. . . . .	\$2,921 31
Surplus balance from last year,	. . . . .	449 16
Surplus June 30, 1912,	. . . . .	\$3,370 47

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts,	. . . . .	\$38,204 02
Notes and accounts receivable,	. . . . .	1,492 29
Cash on hand,	. . . . .	359 65
Total debits,	. . . . .	\$40,055 96

*Liabilities.*

Capital stock,	. . . . .	\$30,000 00
Mortgage,	. . . . .	1,500 00
Notes payable,	. . . . .	1,500 00
Accounts payable,	. . . . .	1,403 39
Balance, surplus,	. . . . .	5,652 57
Total credits,	. . . . .	\$40,055 96

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	830
Number of instruments, . . . . .	842
Number of operators, . . . . .	12
Number of pay stations, . . . . .	11
Number of subscribers on party lines, . . . . .	816
Number of subscribers on single lines, . . . . .	14
Overhead system:—	
Pole line, miles, . . . . .	165
Iron wire, miles, . . . . .	950

NOTE. — "We have no poles in Massachusetts. One circuit on poles of other lines, about one mile in length, with one subscriber. Fourteen instruments connected to lines owned by farmers which includes everything we have in Massachusetts. Earnings in Massachusetts, \$282.70."

## CRESCENT TELEPHONE COMPANY.

Location of principal business office: New Salem, Mass.

Date when company began to give service: October, 1902.

Service is given by this company over its own lines in the towns of New Salem and Orange.

## GENERAL OFFICER.

L. W. Flag, . . . . . *Owner.*

## EARNINGS AND EXPENSES.

Gross earnings, . . . . .	\$65 00
Expenses, . . . . .	4 50
Net earnings, . . . . .	\$60 50

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$250 00
Notes and accounts receivable, . . . . .	29 10
Total debits, . . . . .	\$279 10

*Liabilities.*

Capital stock, . . . . .	\$250 00
Balance, surplus, . . . . .	29 10
Total credits, . . . . .	\$279 10

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	16
Number of instruments, . . . . .	18
Number of subscribers on party lines, . . . . .	16
Overhead system:—	
Pole line, miles, . . . . .	13
Iron wire, miles, . . . . .	13

Total credits,	\$1,227 64
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## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	15
Number of instruments, . . . . .	21
Number of subscribers on party lines, . . . . .	13
Number of subscribers on single lines, . . . . .	2
Overhead system:—	
Pole line, miles, . . . . .	6
Iron wire, miles, . . . . .	6

## GRANBY TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: Granby, Mass.

Date of organization: February, 1903.

Date of incorporation: February, 1903.

State in which incorporated: Massachusetts.

Date of annual meeting: third Monday in January.

Date when company began to give service: May, 1903.

Service is given by this company over its own lines in the towns of Granby and Ludlow.

## GENERAL OFFICERS AND OFFICIAL TITLES.

George R. Smith, . . . . .	<i>President.</i>
George F. Eastman, . . . . .	<i>Manager.</i>
Willard A. Taylor, . . . . .	<i>Secretary and Treasurer.</i>
Clifford W. Ferry, . . . . .	<i>Auditor.</i>

## DIRECTORS AND RESIDENCES.

George R. Smith, . . . . .	Granby, Mass.
George F. Eastman, . . . . .	Granby, Mass.
D. R. Barnes, . . . . .	Granby, Mass.
H. S. Taylor, . . . . .	Granby, Mass.
H. H. Moody, . . . . .	Granby, Mass.
W. F. Forward, . . . . .	Granby, Mass.
D. C. Nutting, . . . . .	Granby, Mass.

## CAPITAL.

Capital paid in, . . . . .	\$1,200 00
Number of stockholders, . . . . .	34
Number of stockholders resident in Massachusetts, . . . . .	33
Amount of stock held in Massachusetts, . . . . .	\$1,100 00

## EARNINGS AND EXPENSES.

Gross earnings:—	
Exchange service, . . . . .	\$856 54
Miscellaneous earnings, . . . . .	211 83
Total gross earnings, . . . . .	\$1,068 37
Expenses, . . . . .	716 03
Net earnings, . . . . .	\$352 34
Dividends, . . . . .	120 00
Surplus for year, . . . . .	\$232 34
Surplus balance from last year, . . . . .	407 67
Surplus June 30, 1912, . . . . .	\$640 01

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, plant, . . . . .	\$1,200 00
Cash on hand and due from subscribers, . . . . .	640 01
Total debits, . . . . .	\$1,840 01

*Liabilities.*

Capital stock, . . . . .	\$1,200 00
Accounts payable, . . . . .	87 99
Balance, surplus, . . . . .	552 02
Total credits, . . . . .	\$1,840 01

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	63
Number of instruments, . . . . .	63
Number of operators, . . . . .	4
Number of pay stations, . . . . .	1
Number of subscribers on party lines, . . . . .	62
Number of subscribers on single lines, . . . . .	1
Overhead system:—	
Pole line, miles, . . . . .	22.5
Iron wire, miles, . . . . .	45

NOTE:—"This report takes no account of expense for extension of lines, which would have very materially reduced the surplus.

"I understand expense account is not to include additions to property."

## HEATH LOCAL TELEPHONE COMPANY.

Location of principal business office: North Heath, Mass.

Date of organization: Nov. 1, 1906.

Date when company began to give service: Nov. 1, 1906.

Service is given by this company over its own lines in the town of Heath, Mass.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Isaac W. Stetson, . . . . .	<i>President and General Manager.</i>
Clifford J. Hager, . . . . .	<i>Clerk and Treasurer.</i>

## DIRECTORS AND RESIDENCES.

Isaac W. Stetson, . . . . .	North Heath, Mass.
Clifford J. Hager, . . . . .	Dell, Mass.
Levi Livley, . . . . .	Dell, Mass.
Fred Stone, . . . . .	Cyrus, Mass.

## CAPITAL.

Capital paid in, . . . . .	\$810 00
Number of stockholders, . . . . .	10
Number of stockholders resident in Massachusetts, . . . . .	10

## EARNINGS AND EXPENSES.

Gross earnings:—		
Exchange service,	. . . . .	\$632 00
Toll service,	. . . . .	20 00
Total gross earnings,	. . . . .	\$652 00
Expenses,	. . . . .	640 16
Net earnings,	. . . . .	\$11 84
Dividends,	. . . . .	48 60
Deficit June 30, 1912,	. . . . .	\$36 76

## GENERAL BALANCE SHEET.

<i>Assets.</i>		
Property accounts,	. . . . .	\$1,100 00
Supplies on hand,	. . . . .	20 00
Cash on hand,	. . . . .	13 22
Total debits,	. . . . .	\$1,133 22
<i>Liabilities.</i>		
Capital stock,	. . . . .	\$810 00
Accounts payable,	. . . . .	161 73
Balance, surplus,	. . . . .	161 49
Total credits,	. . . . .	\$1,133 22

## STATISTICAL INFORMATION.

Number of subscribers,	. . . . .	79
Number of instruments,	. . . . .	80
Number of operators,	. . . . .	2
Number of pay stations,	. . . . .	3
Number of subscribers on party lines,	. . . . .	79
Overhead system:—		
Pole line, miles,	. . . . .	22
Iron wire, miles,	. . . . .	64

NOTE. — "Free service was to be given to all of our subscribers to the Heath Telephone Company for like service to us in the town of Charlemont, Mass."

## THE HIGHLAND TELEPHONE COMPANY.

Location of principal business office: Cooleyville, Mass.

Date of organization: May 22, 1907.

Date of incorporation: Aug. 9, 1907.

State in which incorporated: Massachusetts.

Date of annual meeting: first Monday in May.

Date when company began to give service: Sept. 1, 1901.

Service is given by this company over its own lines in the towns of Leverett, New Salem, Prescott and Shutesbury.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Mary F. Vaughan,	. . . . .	<i>President.</i>
Rawson King,	. . . . .	<i>Secretary and Treasurer.</i>



## DIRECTORS AND RESIDENCES.

Mary F. Vaughan,	.	.	.	.	.	North Prescott, Mass.
Rawson King,	.	.	.	.	.	Cooleyville, Mass.
Martha E. King,	.	.	.	.	.	Cooleyville, Mass.

## CAPITAL.

Capital paid in,	.	.	.	.	.	.	.	\$5,000 00
Number of stockholders,	.	.	.	.	.	.	.	3
Number of stockholders resident in Massachusetts,	.	.	.	.	.	.	.	3
Amount of notes outstanding,	.	.	.	.	.	.	.	\$1,500 00

## EARNINGS AND EXPENSES.

Gross earnings:—								
Exchange service,	.	.	.	.	.	.	.	\$1,864 70
Toll service,	.	.	.	.	.	.	.	966 60
Total gross earnings,	.	.	.	.	.	.	.	\$2,831 30
Expenses,	.	.	.	.	.	.	.	2,336 81
Net earnings,	.	.	.	.	.	.	.	\$494 49
Interest payments,	.	.	.	.	.	.	.	168 00
Net profit,	.	.	.	.	.	.	.	\$326 49
Surplus balance from last year,	.	.	.	.	.	.	.	1,153 37
Surplus June 30, 1912,	.	.	.	.	.	.	.	\$1,479 86

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts,	.	.	.	.	.	.	.	\$6,800 00
Notes and accounts receivable,	.	.	.	.	.	.	.	689 99
Supplies on hand,	.	.	.	.	.	.	.	50 00
Cash on hand,	.	.	.	.	.	.	.	424 87
Other assets,	.	.	.	.	.	.	.	15 00
Total debits,	.	.	.	.	.	.	.	\$7,979 86

*Liabilities.*

Capital stock,	.	.	.	.	.	.	.	\$5,000 00
Notes payable,	.	.	.	.	.	.	.	1,500 00
Balance, surplus,	.	.	.	.	.	.	.	1,479 86
Total credits,	.	.	.	.	.	.	.	\$7,979 86

## STATISTICAL INFORMATION.

Number of subscribers,	.	.	.	.	.	.	.	145
Number of instruments,	.	.	.	.	.	.	.	154
Number of operators,	.	.	.	.	.	.	.	3
Number of pay stations,	.	.	.	.	.	.	.	12
Number of subscribers on party lines,	.	.	.	.	.	.	.	145
Overhead system:—								
Pole line, miles,	.	.	.	.	.	.	.	54
Iron wire, miles,	.	.	.	.	.	.	.	221

## LITTLETON TELEPHONE ASSOCIATION.

Location of principal business office: Littleton, Mass.

Date of organization: April 18, 1904.

Date of annual meeting: first Monday in April.

Date when company began to give service: October, 1904.

Service is given by this company over its own lines in the towns of Acton, Harvard, Littleton and Westford.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Frank B. Priest,	.	.	.	.	.	.	<i>President.</i>
John M. Hartwell,	.	.	.	.	.	.	<i>Secretary and Treasurer.</i>
Josiah P. Thacher,	.	.	.	.	.	.	<i>Manager.</i>

## CAPITAL.

Capital paid in,	.	.	.	.	.	.	.	\$1,525 00
Number of stockholders,	.	.	.	.	.	.	.	61
Number of stockholders resident in Massachusetts,	.	.	.	.	.	.	.	61

## EARNINGS AND EXPENSES.

## Gross earnings: —

Exchange service,	.	.	.	.	.	.	.	\$663 00
Miscellaneous earnings,	.	.	.	.	.	.	.	25 00
Total gross earnings,	.	.	.	.	.	.	.	\$688 00
Expenses,	.	.	.	.	.	.	.	604 28
Net earnings,	.	.	.	.	.	.	.	\$83 72
Surplus balance from last year,	.	.	.	.	.	.	.	280 85
Surplus, June 30, 1912,	.	.	.	.	.	.	.	\$364 57

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts,	.	.	.	.	.	.	.	\$1,632 00
Notes and accounts receivable,	.	.	.	.	.	.	.	246 36
Supplies on hand,	.	.	.	.	.	.	.	40 00
Cash on hand,	.	.	.	.	.	.	.	42 00
Total debits,	.	.	.	.	.	.	.	\$1,960 36

*Liabilities.*

Capital stock,	.	.	.	.	.	.	.	\$1,525 00
Accounts payable,	.	.	.	.	.	.	.	89 19
Balance, surplus,	.	.	.	.	.	.	.	346 17
Total credits,	.	.	.	.	.	.	.	\$1,960 36

## STATISTICAL INFORMATION.

Number of subscribers,	.	.	.	.	.	.	.	66
Number of instruments,	.	.	.	.	.	.	.	62
Number of subscribers on party lines,	.	.	.	.	.	.	.	66
Overhead system: —								
Pole line, miles,	.	.	.	.	.	.	.	24
Iron wire, miles,	.	.	.	.	.	.	.	48

THE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY OF  
MASSACHUSETTS.

Location of principal business office: 50 Oliver Street, Boston, Mass.

Date of organization: May 17, 1888.

Date of incorporation: May 17, 1888.

State in which incorporated: Massachusetts.

Date of annual meeting: first Wednesday in April.

GENERAL OFFICERS AND OFFICIAL TITLES.

Francis A. Houston, . . . . .	<i>President and General Manager.</i>
Edmund S. Willard, . . . . .	<i>Treasurer.</i>
Edward A. Wilkie, . . . . .	<i>Clerk.</i>
Carl T. Keller, . . . . .	<i>Assistant General Manager.</i>
Edmund W. Longley, . . . . .	<i>Auditor.</i>

DIRECTORS AND RESIDENCES.

Jasper N. Keller, . . . . .	Surry, N. H.
William J. Denver, . . . . .	Roxbury, Mass.
Francis A. Houston, . . . . .	Concord, Mass.
Edmund W. Longley, . . . . .	Salem, Mass.

CAPITAL.

Capital authorized by certificate of association, . . . . .	\$25,000 00
Capital authorized by vote of company, . . . . .	25,000 00
Capital paid in, 250 shares; par value, \$100, . . . . .	25,000 00
Whole number of stockholders, . . . . .	5
Number of stockholders resident in Massachusetts, . . . . .	3
Amount of stock held in Massachusetts (shares), . . . . .	15
Amount of stock held by parent telephone company (shares), . . . . .	230

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
Dec. 31, 1908	Demand, .	Note, . . . . .	6	\$363,567 96
Capital paid in, . . . . .				\$25,000 00
Total liability for capital and loans, . . . . .				\$388,567 96

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Operation, executive department, . . . . .		\$2,004 92
Real estate revenue, . . . . .		35,744 92
Total income above expenses, . . . . .		\$33,740 00
Interest charges and taxes:—		
Interest on floating debt, . . . . .	\$23,504 43	
Taxes, . . . . .	6,355 45	
Total charges, . . . . .		29,859 88
Surplus for year ending June 30, 1912, . . . . .		\$3,880 12

## GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Exchange and toll construction, . . . . .		\$33,000 00
Investment real estate not required for operation, . . . . .		454,158 54
Total plant account, . . . . .		\$487,158 54
Current assets:—		
Cash on hand, . . . . .		417 50
Total debits, . . . . .		\$487,576 04
<i>Liabilities.</i>		
Capital stock, common, . . . . .		\$25,000 00
Current liabilities:—		
Loans and notes payable, . . . . .	\$363,567 96	
Audited vouchers and accounts, . . . . .	44,556 02	
Total current liabilities, . . . . .		408,123 98
Accrued liabilities:—		
Taxes accrued but not due, . . . . .		3,064 21
Total liabilities, . . . . .		\$436,188 19
Balance, surplus, . . . . .		51,387 85
Total credits, . . . . .		\$487,576 04

## PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year, . . . . .		\$47,507 73
Real estate revenue, . . . . .		35,744 92
Expenses, not including taxes, . . . . .	\$2,004 92	
Interest on floating debt, . . . . .	23,504 43	
Taxes, . . . . .	6,355 45	
Balance, surplus, . . . . .	51,387 85	
	\$83,252 65	\$83,252 65

## PLANT ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

<i>Additions.</i>	<i>Totals.</i>
Investment real estate not required for operation, . . . . .	\$17,920 69
<i>Deductions.</i>	
Property sold:—	
Real estate, . . . . .	36,960 05
Net deductions to plant account for the year, . . . . .	\$19,039 36

NOTE. — This is not an operating company.

## NORTHFIELD FARMS TELEPHONE COMPANY.

Location of principal business office: Northfield Farms, Mass.

Date when company began to give service: 1902.

Service is given by this company over its own lines in the town of Northfield.

## GENERAL OFFICER.

Osgood L. Leach, . . . . . Owner and Manager.

CAPITAL.	
Capital paid in, . . . . .	\$500 00
Number of stockholders, . . . . .	2
Number of stockholders resident in Massachusetts, . . . . .	2

EARNINGS AND EXPENSES.	
Gross earnings, . . . . .	\$417 93
Expenses, . . . . .	237 70
Net earnings, . . . . .	\$180 23

GENERAL BALANCE SHEET.	
<i>Assets.</i>	
Property accounts, . . . . .	\$500 00
<i>Liabilities.</i>	
Capital stock, . . . . .	\$500 00

STATISTICAL INFORMATION.	
Number of subscribers, . . . . .	34
Number of instruments, . . . . .	34
Number of pay stations, . . . . .	1
Number of subscribers on party lines, . . . . .	34
Overhead system: —	
Pole line, miles, . . . . .	9
Iron wire, miles, . . . . .	9

NOTE. — "Private line owned by O. L. Leach and Mrs. C. H. Green, of North-field, Mass."

#### NORTH ORANGE TELEPHONE COMPANY.

Location of principal business office: North Orange, Mass.

Date of organization: April 29, 1902.

Date when company began to give service: June 1, 1902.

Service is given by this company over its own lines in the town of Orange, Mass.

GENERAL OFFICER.	
H. W. Gilmore, . . . . .	<i>General Manager.</i>
EARNINGS AND EXPENSES.	
Gross earnings, . . . . .	\$63 66
Expenses, . . . . .	12 79
Net earnings, . . . . .	\$50 87
Surplus balance from last year, . . . . .	132 21
Surplus June 30, 1912, . . . . .	\$183 08

GENERAL BALANCE SHEET.	
<i>Assets.</i>	
Property accounts, . . . . .	\$300 00
<i>Liabilities.</i>	
Capital stock, . . . . .	\$300 00

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	50
Number of instruments, . . . . .	51
Number of operators, . . . . .	1
Number of subscribers on party lines, . . . . .	49
Number of subscribers on single lines, . . . . .	1
Overhead system:—	
Pole line, miles, . . . . .	10
Iron wire, miles, . . . . .	10

NOTE. — "This company was organized for the purpose of accommodation between the farmers of the different districts, not for a money-making scheme. The lines were built by the farmers and boxes were hired from the New England Telephone and Telegraph Company and connected with the New England Telephone and Telegraph Company with a switchboard at North Orange post office. Until last February, the New England Telephone and Telegraph Company paid the company five cents for all tolls passing over the lines of the North Orange Telephone Company, but since Feb. 1, 1912, the New England Telephone and Telegraph Company pay to the North Orange Telephone Company a commission of .544 per cent. for all tolls which originate on the North Orange Telephone Company's line. This is the only revenue derived and is used in keeping the line in repair."

## OAKHAM AND COLDBROOK SPRINGS TELEPHONE COMPANY.

Location of principal business office: Oakham, Mass.

Date of organization: June 1, 1893.

Date when company began to give service: July 16, 1903.

Service is given by this company over its own lines in the towns of Barre, New Braintree and Oakham.

## GENERAL OFFICERS.

Frank S. Conant, . . . . .	<i>President and General Manager.</i>
Harry B. Parker, . . . . .	<i>Treasurer.</i>

## CAPITAL.

Capital paid in, . . . . .	\$2,441 18
Number of stockholders, . . . . .	2
Number of stockholders resident in Massachusetts, . . . . .	2

## EARNINGS AND EXPENSES.

Gross earnings:—	
Exchange service, . . . . .	\$1,044 26
Toll service, . . . . .	408 55
Miscellaneous earnings, . . . . .	33 17
Total gross earnings, . . . . .	\$1,485 98
Expenses, . . . . .	702 75
Net earnings, . . . . .	\$783 23
Interest payments, . . . . .	27 00
Net profit, . . . . .	\$756 23
Surplus balance from last year, . . . . .	169 45
	\$925 68
Miscellaneous charges to surplus, . . . . .	311 03
Surplus June 30, 1912, . . . . .	\$614 65

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$2,799 33
Notes and accounts receivable, . . . . .	99 89
Supplies on hand, . . . . .	15 00
Cash on hand, . . . . .	134 43
Other assets, . . . . .	40 00
Total debits, . . . . .	\$3,088 65

*Liabilities.*

Capital stock, . . . . .	\$2,441 18
Accounts payable, . . . . .	178 90
Surplus, balance, . . . . .	468 57
Total credits, . . . . .	\$3,088 65

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	68
Number of instruments, . . . . .	74
Number of operators, . . . . .	3
Number of pay stations, . . . . .	5
Number of subscribers on party lines, . . . . .	66
Number of subscribers on single lines, . . . . .	2
Overhead system: —	
Pole line, miles, . . . . .	29
Iron wire, miles, . . . . .	82
Copper wire, miles, . . . . .	2

## E. M. PARTRIDGE.

Location of principal business office: Millers Falls, Mass.

Date when company began to give service: June 1, 1899.

Service is given by this company over its own lines in the towns of Erving and Montague.

## GENERAL OFFICER.

E. M. Partridge, . . . . . *Owner.*

## EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service, . . . . .	\$1,039 20
Toll service, . . . . .	6 15
Miscellaneous earnings, . . . . .	430 25
Total gross earnings, . . . . .	\$1,475 60
Expenses, . . . . .	1,205 29
Net earnings, . . . . .	\$270 31
Surplus balance from last year, . . . . .	129 74

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$1,515 04
Notes and accounts receivable, . . . . .	351 41
Supplies on hand, . . . . .	50 00
Cash on hand, . . . . .	62 02
Total debits, . . . . .	\$1,978 47

<i>Liabilities.</i>	
Capital stock, . . . . .	\$1,515 04
Accounts payable, . . . . .	60 00
Balance, surplus, . . . . .	403 43
<hr/>	
Total credits, . . . . .	\$1,978 47

STATISTICAL INFORMATION.	
Number of subscribers, . . . . .	76
Number of instruments, . . . . .	80
Number of pay stations, . . . . .	1
Number of subscribers on party lines, . . . . .	71
Number of subscribers on single lines, . . . . .	5
Overhead system:—	
Pole line, miles, . . . . .	.75
Iron wire, miles, . . . . .	16.5
Copper wire, miles, . . . . .	1.25

#### RICHMOND TELEPHONE COMPANY.

Location of principal business office: Richmond, Mass.

Date of organization: Aug. 25, 1903.

Date of incorporation: 1903.

State in which incorporated: Massachusetts.

Date of annual meeting: second Friday after July 1.

Date when company began to give service: 1903.

Service is given by this company over its own lines in the town of Richmond, Mass.

#### GENERAL OFFICERS AND OFFICIAL TITLES.

Sidney M. Loveland, . . . . .	<i>President and General Manager.</i>
Charles H. Nichols, . . . . .	<i>Vice-President.</i>
Jesse H. Fairfield, Jr., . . . . .	<i>Clerk and Treasurer.</i>

#### DIRECTORS AND RESIDENCES.

Sidney M. Loveland, . . . . .	Richmond, Mass.
Charles H. Nichols, . . . . .	Richmond, Mass.
William H. Sherrill, . . . . .	Richmond, Mass.
Amos G. Kiltz, . . . . .	Oak Hill, N. Y.
James H. Barnes, . . . . .	Richmond, Mass.

#### CAPITAL.

Capital paid in, . . . . .	\$1,610 00
Number of stockholders, . . . . .	22
Number of stockholders resident in Massachusetts, . . . . .	19
Amount of stock held in Massachusetts, . . . . .	\$1,330 00
Amount of notes outstanding, . . . . .	200 00



## EARNINGS AND EXPENSES.

## Gross earnings:—

Exchange service, . . . . .	\$1,211 75
Toll service, . . . . .	653 44
Miscellaneous earnings, . . . . .	106 25
Total gross earnings, . . . . .	\$1,971 44
Expenses, . . . . .	1,805 73
Net earnings, . . . . .	\$165 71
Interest payments, . . . . .	22 00
Net profit, . . . . .	\$143 71
Surplus balance from last year, . . . . .	1,693 33
	\$1,837 04
Miscellaneous charges to surplus, . . . . .	207 19
Surplus June 30, 1912, . . . . .	\$1,629 85

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$3,248 87
Notes and accounts receivable, . . . . .	333 47
Cash on hand, . . . . .	185 23
Total debits, . . . . .	\$3,767 57

*Liabilities.*

Capital stock, . . . . .	\$1,610 00
Notes payable, . . . . .	200 00
Accounts payable, . . . . .	327 72
Balance, surplus, . . . . .	1,629 85
Total credits, . . . . .	\$3,767 57

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	82
Number of instruments, . . . . .	88
Number of operators, . . . . .	2
Number of pay stations, . . . . .	2
Number of subscribers on party lines, . . . . .	78
Number of subscribers on single lines, . . . . .	4
Overhead system:—	
Pole line, miles, . . . . .	27.75
Iron wire, miles, . . . . .	48

## ROWLEY TELEPHONE COMPANY.

Location of principal business office: Rowley, Mass.

Date when company began to give service: Dec. 15, 1898.

Service is given by this company over its own lines in the towns of Ipswich and Rowley.

## GENERAL OFFICERS.

Albert E. Bailey and Almon E. Carpenter, . . . . . Owners.

## CAPITAL.

Capital paid in, . . . . .	\$1,945 67
Amount of notes outstanding, . . . . .	1,200 00

## EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service, . . . . .	\$722 61
Toll service, . . . . .	111 27
Miscellaneous earnings, . . . . .	3 35
Total gross earnings, . . . . .	\$837 23
Expenses, . . . . .	611 09
Net earnings, . . . . .	\$226 14
Interest payments, . . . . .	77 00
Net profit, . . . . .	\$149 14

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$2,358 93
Notes and accounts receivable, . . . . .	507 68
Supplies on hand, . . . . .	400 00
Cash on hand, . . . . .	224 91
Total debits, . . . . .	\$3,491 52

*Liabilities.*

Capital stock, . . . . .	\$1,945 67
Notes payable, . . . . .	1,200 00
Accounts payable, . . . . .	114 69
Balance, surplus, . . . . .	231 16
Total credits, . . . . .	\$3,491 52

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	58
Number of instruments, . . . . .	58
Number of operators, . . . . .	1
Number of pay stations, . . . . .	4
Number of subscribers on party lines, . . . . .	54
Number of subscribers on single lines, . . . . .	4
Overhead system: —	
Pole line, miles, . . . . .	10
Iron wire, miles, . . . . .	27

## STATE LINE CO-OPERATIVE TELEPHONE COMPANY NO. 7.

Location of principal business office: West Stockbridge, Mass.

Date of organization: Jan. 1, 1902.

Date when company began to give service: Jan. 1, 1902.

Service is given by this company over its own lines in the town of West Stockbridge, and in the State of New York.

## GENERAL OFFICERS AND OFFICIAL TITLES.

John Howes, . . . . .	<i>President.</i>
John P. Smith, . . . . .	<i>Treasurer.</i>
Charles H. Baldwin, . . . . .	<i>Secretary.</i>

## CAPITAL.

Capital paid in, . . . . .	\$525 00
Number of stockholders, . . . . .	15

## EARNINGS AND EXPENSES.

Gross earnings, . . . . .	\$105 17
Expenses, . . . . .	77 16
Surplus June 30, 1912, . . . . .	\$28 01

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$525 00
Cash on hand, . . . . .	28 01
Total debits, . . . . .	\$553 01

*Liabilities.*

Capital stock, . . . . .	\$525 00
Balance, surplus, . . . . .	28 01
Total credits, . . . . .	\$553 01

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	15
Number of instruments, . . . . .	15
Number of operators, . . . . .	2
Number of pay stations, . . . . .	2
Number of subscribers on party lines, . . . . .	15
Overhead system: —	
Pole line, miles, . . . . .	5
Iron wire, miles, . . . . .	10

## STATE LINE TELEPHONE COMPANY.

Location of principal business office: West Stockbridge, Mass.

Date when company began to give service: April, 1902.

Service is given by this company over its own lines in the town of West Stockbridge.

## GENERAL OFFICER. .

W. H. Losty, . . . . . *Owner*

## CAPITAL.

Capital paid in, . . . . .	\$1,410 00
----------------------------	------------

## EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service, . . . . .	\$63 50
Toll service, . . . . .	35 23
Miscellaneous earnings, . . . . .	261 00
Total gross earnings, . . . . .	\$359 70
Expenses, . . . . .	359 70

## GENERAL BALANCE SHEET.

<i>Assets.</i>	
Property accounts, . . . . .	\$1,410 00

<i>Liabilities.</i>	
Capital stock, . . . . .	\$1,410 00

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	17
Number of instruments, . . . . .	17
Number of pay stations, . . . . .	2
Number of subscribers on party lines, . . . . .	17
Overhead system:—	
Pole line, miles, . . . . .	9
Iron wire, miles, . . . . .	9

NOTE. — "The so-called State Line Telephone Company is not an incorporated body, but is a name given by the New England Telephone Company in their directory to the exchange at West Stockbridge and State Line owned by W. H. Losty and that he has made this report as near right as possible."

## TAGHCONIC TELEPHONE COMPANY.

Location of principal business office: West Stockbridge, Mass.

Date of organization: Dec. 31, 1907.

Date of incorporation: July 1, 1908.

State in which incorporated: Massachusetts.

Date of annual meeting: first Tuesday in December.

Date when company began to give service: Jan. 1, 1909.

Service is given by this company over its own lines in the towns of Alford, Great Barrington and West Stockbridge, Mass.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Charles W. Roberts, . . . . .	<i>President.</i>
E. Arthur Easland, . . . . .	<i>Treasurer and Clerk.</i>
E. Monroe Easland, . . . . .	<i>Vice-President.</i>

## DIRECTORS AND RESIDENCES.

Charles W. Roberts, . . . . .	West Stockbridge, Mass.
Fabyan V. Petit, . . . . .	West Stockbridge, Mass.
Charles B. Wilson, . . . . .	West Stockbridge, Mass.

## CAPITAL.

Capital paid in, . . . . .	\$1,000 00
Number of stockholders, . . . . .	21
Number of stockholders resident in Massachusetts, . . . . .	21

## EARNINGS AND EXPENSES.

Gross earnings:—	
Exchange service, . . . . .	\$288 00
Expenses, . . . . .	147 51
Net earnings, . . . . .	\$140 49
Dividends, . . . . .	60 00
Surplus for year, . . . . .	\$80 49
Surplus balance from last year, . . . . .	451 77
Surplus June 30, 1912, . . . . .	\$532 26

## GENERAL BALANCE SHEET.

<i>Assets.</i>	
Property accounts, . . . . .	\$1,336 03
Notes and accounts receivable, . . . . .	74 25
Supplies on hand, . . . . .	10 00
Cash on hand, . . . . .	129 52
Total debits, . . . . .	\$1,549 80
<i>Liabilities.</i>	
Capital stock, . . . . .	\$1,000 00
Accounts payable, . . . . .	17 54
Balance, surplus, . . . . .	532 26
Total credits, . . . . .	\$1,549 80

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	32
Number of instruments, . . . . .	34
Number of operators, . . . . .	1
Number of subscribers on party lines, . . . . .	32
Overhead system:—	
Pole line, miles, . . . . .	18
Iron wire, miles, . . . . .	36

## WEST STOCKBRIDGE MUTUAL TELEPHONE COMPANY.

Location of principal business office: West Stockbridge, Mass.

Date of organization: Dec. 20, 1904.

Date of incorporation: March 7, 1904.

State in which incorporated: Massachusetts.

Date of annual meeting: second Monday in May.

Date when company began to give service: May 1, 1904.

Service is given by this company over its own lines in the town of West Stockbridge.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Cyrus W. Sprague, . . . . .	President.
William W. Bartlett, . . . . .	Secretary and Treasurer.

## DIRECTORS AND RESIDENCES.

Cyrus W. Sprague,	.	.	.	.	West Stockbridge, Mass.
Vallas R. Truesdell,	.	.	.	.	West Stockbridge, Mass.
Charles H. Fuarey,	.	.	.	.	West Stockbridge, Mass.
James S. Moore,	.	.	.	.	West Stockbridge, Mass.
Waller A. Forrons,	.	.	.	.	West Stockbridge, Mass.

## CAPITAL.

Capital paid in,	.	.	.	.	.	.	.	\$1,000 00
Number of stockholders,	.	.	.	.	.	.	.	12
Number of stockholders resident in Massachusetts,	.	.	.	.	.	.	.	8
Amount of stock held in Massachusetts,	.	.	.	.	.	.	.	\$500 00

## EARNINGS AND EXPENSES.

Gross earnings:—								
Exchange service,	.	.	.	.	.	.	.	\$267 05
Expenses,	.	.	.	.	.	.	.	183 29
Net earnings,	.	.	.	.	.	.	.	\$83 76
Dividends,	.	.	.	.	.	.	.	119 00
Deficit for the year,	.	.	.	.	.	.	.	\$35 24
Surplus balance from last year,	.	.	.	.	.	.	.	106 02
Surplus June 30, 1912,	.	.	.	.	.	.	.	\$70 78

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts,	.	.	.	.	.	.	.	\$800 00
Notes and accounts receivable,	.	.	.	.	.	.	.	50 00
Supplies on hand,	.	.	.	.	.	.	.	15 00
Cash on hand,	.	.	.	.	.	.	.	70 78
Other assets,	.	.	.	.	.	.	.	150 00
Total debits,	.	.	.	.	.	.	.	\$1,085 78

*Liabilities.*

Capital stock,	.	.	.	.	.	.	.	\$1,000 00
Balance, surplus,	.	.	.	.	.	.	.	85 78
Total credits,	.	.	.	.	.	.	.	\$1,085 78

## STATISTICAL INFORMATION.

Number of subscribers,	.	.	.	.	.	.	.	42
Number of instruments,	.	.	.	.	.	.	.	43
Number of operators,	.	.	.	.	.	.	.	2
Number of pay stations,	.	.	.	.	.	.	.	1
Number of subscribers on party lines,	.	.	.	.	.	.	.	42
Overhead system:—								
Pole line, miles,	.	.	.	.	.	.	.	5
Iron wire, miles,	.	.	.	.	.	.	.	10

## THE WENDELL TELEPHONE LINE.

Location of principal business office: Cooleyville, Mass.

Date of organization: August, 1904.

Date when company began to give service: Nov. 1, 1904.

Service is given by this company over its own lines in the town of Wendell, Mass.

## GENERAL OFFICER.

Sewall V. King, . . . . . *Owner.*

## EARNINGS AND EXPENSES.

Exchange service, . . . . .	\$264 00
Toll service, . . . . .	34 50
Total gross earnings, . . . . .	\$298 50
Expenses, . . . . .	120 50
Net earnings, . . . . .	\$178 00

## GENERAL BALANCE SHEET.

*Assets.*

Property accounts, . . . . .	\$1,000 00
Accounts receivable, . . . . .	11 00
Supplies on hand, . . . . .	9 00
Cash on hand, . . . . .	300 00
Total debits, . . . . .	\$1,320 00

*Liabilities.*

Capital stock, . . . . .	\$1,000 00
Notes payable, . . . . .	320 00
Total credits, . . . . .	\$1,320 00

## STATISTICAL INFORMATION.

Number of subscribers, . . . . .	22
Number of instruments, . . . . .	25
Number of pay stations, . . . . .	2
Overhead system: —	
Pole line, miles, . . . . .	9
Iron wire, miles, . . . . .	26

## TELEGRAPH COMPANIES.

## COMMERCIAL CABLE COMPANY.

Location of principal business office: 112 State Street, Boston, Mass.

Date of organization: March 14, 1906.

Date of incorporation: March 14, 1906.

State in which incorporated: Massachusetts.

Date of annual meeting: February 15.

Date when company began to give service: April 1, 1906.

Service is given by this company over its own lines in Boston and Rockport.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Clarence H. Mackay, . . . . .	<i>President.</i>
George G. Ward, . . . . .	<i>Vice-President.</i>
Edward C. Platt, . . . . .	<i>Treasurer and Assistant Clerk.</i>

## DIRECTORS AND RESIDENCES.

Clarence H. Mackay,	.	.	.	.	Roslyn, Long Island, N. Y.
George G. Ward,	.	.	.	.	New York, N. Y.
Frederick H. Putt,	.	.	.	.	Boston, Mass.

## CAPITAL.

Capital authorized by vote of company,	.	.	.	.	\$10,000 00
Capital paid in, 100 shares; par value, \$100,	.	.	.	.	10,000 00

Whole number of stockholders,	.	.	.	.	4
Number of stockholders resident in Massachusetts,	.	.	.	.	1
Amount of stock held in Massachusetts (shares),	.	.	.	.	1

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Revenue from operation,	.	\$51,741 81
General expense,	\$2,484 54	
Operating expense,	29,796 95	
Current repair,	2,368 62	
Rented lines,	4,800 00	
Total expenses,		39,450 11
Net revenue from operation,	.	\$12,291 70
Miscellaneous income:—		
Bank interest,	.	237 34
Surplus for year ending June 30, 1912,	.	\$12,529 04

## EARNINGS.

Gross earnings from operation:—		
Cable service,	.	\$51,741 81
Miscellaneous income:—		
Bank interest,	.	237 34
Total gross earnings and income,	.	\$51,979 15

## EXPENSES.

Operating expenses:—		
General expense:—		
Postage, printing and stationery,	.	\$845 07
Miscellaneous office expenses,	.	982 95
Travelling,	.	90 75
Insurance,	.	377 59
Taxes,	.	188 18
Total general expense,	.	\$2,484 54
Operating:—		
Superintendence,	.	\$4,800 00
Wages of operators,	.	18,968 36
Wages of messengers,	.	1,557 00
Rent, light and heat,	.	4,328 15
Advertising and canvassing,	.	40 00
Incidental,	.	103 44
Total operating expense,	.	29,796 95
Current repair:—		
Repairs, instruments and batteries,	.	\$2,355 62
Incidental,	.	13 00
Total current repairs,	.	2,368 62
Rented lines,	.	4,800 00
Total of all operating expenses,	.	\$39,450 11



## GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Real estate at Rockport, — office building and land, . . . . .	\$4,200 75	
Electrical apparatus, equipment, office furniture, etc., . . . . .	6,000 00	
Total plant account, . . . . .		\$10,200 75
Current assets: —		
Cash on hand, . . . . .	\$2,737 62	
Notes and accounts receivable, . . . . .	10,614 45	
Total current assets, . . . . .		13,352 07
Total debits, . . . . .		\$23,552 82
<i>Liabilities.</i>		
Capital stock, . . . . .		\$10,000 00
Current liabilities: —		
Audited vouchers and accounts, . . . . .		10,333 98
Balance, surplus, . . . . .		3,218 84
Total credits, . . . . .		\$23,552 82

## PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year, . . . . .	\$9,310 20	
Operating expenses, . . . . .	39,450 11	
Gross earnings from operation, . . . . .		\$51,741 81
Bank interest, . . . . .		237 34
Balance, surplus, . . . . .	3,218 84	
	\$51,979 15	\$51,979 15

## GENERAL REMARKS AND EXPLANATIONS.

NOTE. — "This company carries on an international telegraph and cable business only, and does not do any intrastate nor interstate business in the United States, its sole business being to send and receive cablegrams between the United States, Canada and Europe."

## THE COMMERCIAL UNION TELEGRAPH COMPANY OF MASSACHUSETTS.

Location of principal business office: 100 State Street, Boston, Mass.

Date of organization: Aug. 3, 1888.

Date of incorporation: Aug. 3, 1888.

State in which incorporated: Massachusetts.

Date of annual meeting: fourth Saturday in July.

Date when company began to give service: Aug. 3, 1888.

Service is given by this company over its own lines in the following cities and towns: —

Adams,	Greenfield,	Merrimac,
Amesbury,	Haverhill,	Newburyport,
Athol,	Lawrence,	North Adams,
Fitchburg,	Lenox,	Pittsfield,
Foxborough,	Leominster,	Shelburne,
Gardner,	Lowell,	Williamstown.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Charles A. Richardson, . . . . .	<i>President.</i>
Charles P. Bruch, . . . . .	<i>Vice-President.</i>
Theodore L. Cuyler, Jr., . . . . .	<i>Treasurer.</i>
Frank G. McGinnis, . . . . .	<i>Clerk.</i>

## DIRECTORS AND RESIDENCES.

Charles A. Richardson, . . . . .	Dorchester, Mass.
Charles P. Bruch, . . . . .	780 Park Ave., New York, N. Y.
Edward J. Nally, . . . . .	Ossining, N. Y.

## CAPITAL.

Capital authorized by charter, . . . . .	\$10,000 00
Capital paid in, 100 shares; par value, \$100, . . . . .	10,000 00
Whole number of stockholders, . . . . .	4
Number of stockholders resident in Massachusetts, . . . . .	1
Amount of stock held in Massachusetts (shares), . . . . .	1

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, <sup>1</sup> . . . . .		\$41,016 87
General expense, . . . . .	\$5,921 16	
Operating expense, . . . . .	27,930 46	
Current repair, . . . . .	7,529 29	
Total expenses, . . . . .		41,380 91
Deficit for year ending June 30, 1912, . . . . .		\$364 04

## EARNINGS (WHOLE SYSTEM).

Gross earnings from operation, . . . . .	\$41,016 87
------------------------------------------	-------------

## EXPENSES (WHOLE SYSTEM).

## General expense:—

Salaries of officers, . . . . .	\$1,919 24	
Postage, printing and stationery, . . . . .	892 84	
Miscellaneous office expenses, . . . . .	969 40	
Damages, . . . . .	711 35	
Legal, . . . . .	234 20	
Rent of right of way, . . . . .	942 12	
Insurance, . . . . .	15 52	
Taxes, . . . . .	236 49	
Total general expense, . . . . .		\$5,921 16

## Operating:—

Wages of operators and others, . . . . .	\$16,082 69	
Wages of messengers, . . . . .	6,151 58	
Rent, light and heat, . . . . .	5,265 00	
Advertising and canvassing, . . . . .	2 67	
Incidental, . . . . .	428 52	
Total operating expense, . . . . .		27,930 46

## Current repair:—

Repairs, overhead lines, . . . . .	\$7,457 37	
Repairs, call circuits, . . . . .	68 67	
Repairs, instruments and batteries, . . . . .	3 25	
Total current repairs, . . . . .		7,529 29

Total of all operating expenses, . . . . .	\$41,380 91
--------------------------------------------	-------------

<sup>1</sup> Gross earnings from operation in Massachusetts, \$4,230.94.

## GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Plant required for operation, . . . . .		\$10,000 00
Current assets:—		
Cash on hand, . . . . .	\$2,082 90	
Accounts receivable, . . . . .	5,897 61	
Total current assets, . . . . .		7,980 51
Balance, deficit, . . . . .		2,161 37
		<hr/>
Total debits, . . . . .		\$20,141 88
<i>Liabilities.</i>		
Capital stock, . . . . .		\$10,000 00
Current liabilities:—		
Accounts payable, . . . . .		10,141 88
		<hr/>
Total credits, . . . . .		\$20,141 88

## PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year, . . . . .	\$1,797 33	
Operating expenses, . . . . .	41,380 91	
Gross earnings from operation, . . . . .		\$41,016 87
Balance, deficit, . . . . .		2,161 37
		<hr/>
		\$43,178 24
		<hr/>
		\$43,178 24

## MARTHAS VINEYARD TELEGRAPH COMPANY.

Location of principal business office: Woods Hole, Mass.

Date of organization: July 16, 1900.

Date of incorporation: July 20, 1900.

State in which incorporated: Massachusetts.

Date of annual meeting: January 15.

Date when company began to give service: Oct. 1, 1900.

Service is given by this company over its own lines in the following towns:—

Edgartown,	Gosnold,	Oak Bluffs,
Falmouth,	Nantucket,	Tisbury.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Henry G. Haddon, . . . . .	<i>President and General Manager.</i>
Frank G. McGinnis, . . . . .	<i>Clerk and Treasurer.</i>

## DIRECTORS AND RESIDENCES.

Charles F. Ames, . . . . .	Winchester, Mass.
Charles A. Richardson, . . . . .	Dorchester, Mass.
Henry G. Haddon, . . . . .	Woods Hole, Mass.

## CAPITAL.

Capital authorized by charter, . . . . .	\$10,000 00
Capital authorized by vote of company, . . . . .	10,000 00
Capital paid in, 100 shares; par value, \$100, . . . . .	10,000 00
Whole number of stockholders, . . . . .	2
Number of stockholders resident in Massachusetts, . . . . .	None.

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation, . . . . .		\$35,590 02
Less rebates and discounts and traffic handled for other companies,		21,529 28
Revenue from operation, . . . . .		\$14,060 74
General expense, . . . . .	\$2,762 82	
Operating expense, . . . . .	4,154 14	
Current repair, . . . . .	1,016 15	
Total expenses, . . . . .		7,933 11
Net revenue from operation, . . . . .		\$6,127 63
Miscellaneous income, . . . . .		453 18
Total income above expenses, . . . . .		\$6,580 81
Dividends declared on stock, 5%, . . . . .		500 00
Surplus for year ending June 30, 1912, . . . . .		\$6,080 81

## EARNINGS.

Gross earnings from operation: —		
Telegraph service, . . . . .	\$35,373 27	
Money transfers, . . . . .	178 70	
Messenger service, . . . . .	38 05	
		\$35,590 02
Less rebates and discounts and traffic handled for other companies,		21,529 28
Total gross earnings from operation, . . . . .		\$14,060 74
Miscellaneous income: —		
Subrents, . . . . .	\$38 30	
Interest on deposits, . . . . .	120 19	
Other miscellaneous income, . . . . .	294 69	
Total miscellaneous income, . . . . .		453 18
Total gross earnings and income, . . . . .		\$14,513 92

## EXPENSES.

Operating expenses: —		
General expense: —		
Salaries of officers, . . . . .	\$1,707 00	
Postage, printing and stationery, . . . . .	96 53	
Miscellaneous office expenses, . . . . .	62 08	
Travelling, . . . . .	115 20	
Legal, . . . . .	501 00	
Rent of right of way, . . . . .	25 00	
Insurance, . . . . .	256 01	
Total general expense, . . . . .		\$2,762 82
Operating: —		
Wages of operators, . . . . .	\$4,645 08	
Wages of others, . . . . .	86 33	
Wages of messengers, . . . . .	352 25	
Telephone charges, . . . . .	183 12	
Rent, light and heat, . . . . .	553 44	
Amounts carried forward, . . . . .	\$5,820 22	\$2,762 82

	Items.	Totals.
<i>Amounts brought forward,</i> . . . .	\$5,820 22	\$2,762 82
<i>Operating — Concluded.</i>		
Advertising and canvassing, . . . .	127 75	
Incidental, . . . . .	234 83	
	<hr/>	
	\$6,182 80	
Less cost of handling traffic for Western Union and Postal Telegraph Company's business, . .	2,028 66	
Total operating expense, . . . . .	<hr/>	4,154 14
<i>Current repair:—</i>		
Repairs, overhead lines, . . . . .	\$336 35	
Repairs, submarine lines, . . . . .	563 87	
Repairs, instruments and batteries, . .	84 80	
Incidental, . . . . .	31 13	
Total current repairs, . . . . .	<hr/>	1,016 15
	<hr/>	
Total of all operating expenses, . . . . .		\$7,933 11

## GENERAL BALANCE SHEET.

*Assets.*

Overhead lines, . . . . .	\$4,000 00	
Submarine lines, . . . . .	5,000 00	
Equipment, . . . . .	668 50	
Office furniture and fixtures, . . . . .	331 50	
Total plant account, . . . . .	<hr/>	\$10,000 00
<i>Current assets:—</i>		
Cash on hand, . . . . .	\$8,602 07	
Notes and accounts receivable, . . . .	3,996 64	
Total current assets, . . . . .	<hr/>	12,598 71
	<hr/>	
Total debits, . . . . .		\$22,598 71

*Liabilities.*

Capital stock, common, . . . . .	\$10,000 00
Balance, surplus, . . . . .	12,598 71
	<hr/>
Total credits, . . . . .	\$22,598 71

## PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year, . . . . .		\$6,517 90
Gross earnings from operation, . . . . .		35,590 02
Miscellaneous income, . . . . .		453 18
Operating expenses, . . . . .	\$7,933 11	
Rebates and discounts, . . . . .	21,529 28	
Dividends declared on stock, . . . . .	500 00	
Balance, surplus, . . . . .	12,598 71	
	<hr/>	<hr/>
	\$42,561 10	\$42,561 10

## NEW ENGLAND TELEGRAPH COMPANY OF MASSACHUSETTS.

Location of principal business office: 100 State Street, Boston, Mass.

Date of organization: April 7, 1884.

Date of incorporation: April 7, 1884.

State in which incorporated: Massachusetts.

Date of annual meeting: second Tuesday in August.

Service is given by this company over its own lines in Attleborough, Brockton, Gloucester, Rockport and Salem.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Charles A. Richardson,	.	.	.	.	.	<i>President.</i>
Charles P. Bruch,	.	.	.	.	.	<i>Vice-President.</i>
Theodore L. Cuyler, Jr.,	.	.	.	.	.	<i>Treasurer.</i>
Frank G. McGinnis,	.	.	.	.	.	<i>Clerk and Transfer Agent.</i>

## DIRECTORS AND RESIDENCES.

Charles A. Richardson,	.	.	.	.	.	Dorchester, Mass.
Charles C. Adams,	.	.	.	.	.	Cedarhurst, Long Island, N. Y.
Charles P. Bruch,	.	.	.	.	.	780 Park Ave., New York, N. Y.

## CAPITAL.

Capital authorized by charter,	.	.	.	.	.	.	\$30,000 00
Capital paid in, 300 shares; par value, \$100,	.	.	.	.	.	.	30,000 00

Whole number of stockholders,	.	.	.	.	.	.	4
Number of stockholders resident in Massachusetts,	.	.	.	.	.	.	1
Amount of stock held in Massachusetts (shares),	.	.	.	.	.	.	1

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Revenue from operation, <sup>1</sup>	.	\$15,748 26
General expense,	\$1,896 97	
Operating expense,	8,061 08	
Current repair,	2,231 00	
Total expenses,		12,189 05
Surplus for year ending June 30, 1912,		\$3,559 21

## EARNINGS (WHOLE SYSTEM).

Gross earnings from operation,	.	.	.	.	.	.	\$15,748 26
--------------------------------	---	---	---	---	---	---	-------------

## EXPENSES (WHOLE SYSTEM).

Operating expenses:—		
General expense:—		
Salaries of officers,	\$1,068 86	
Postage, printing and stationery,	222 98	
Miscellaneous office expenses,	115 96	
Rent of right of way, ..	93 39	
Taxes,	395 78	
Total general expense,		\$1,896 97
Operating:—		
Wages of operators and others,	\$7,175 70	
Wages of messengers,	345 18	
Rent, light and heat,	509 60	
Amounts carried forward,	\$8,030 48	\$1,896 97

<sup>1</sup> Gross earnings in Massachusetts, \$933.14.

	Items.	Totals.
<i>Amounts brought forward,</i> . . . .	\$8,030 48	\$1,896 97
Operating— <i>Concluded.</i>		
Advertising and canvassing, . . . .	1 96	
Incidental, . . . .	28 64	
Total operating expense, . . . .		8,061 08
Current repair:—		
Repairs overhead lines, . . . .	\$2,226 00	
Repairs instruments and batteries, . . . .	5 00	
Total current repairs, . . . .		2,231 00
Total of all operating expenses, . . . .		\$12,189 05

## GENERAL BALANCE SHEET.

<i>Assets.</i>	
Plant required for operation, . . . .	\$15,000 00
Current assets:—	
Cash on hand, . . . .	\$1,189 00
Accounts receivable, . . . .	7,892 24
Supplies on hand, . . . .	14 96
Total current assets, . . . .	9,096 20
Balance, deficit, . . . .	6,607 17
Total debits, . . . .	\$30,703 37
<i>Liabilities.</i>	
Capital stock, . . . .	\$30,000 00
Current liabilities:—	
Accounts payable, . . . .	703 37
Total credits, . . . .	\$30,703 37

## PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Operating expenses, . . . .	\$12,189 05	
For depreciation:—		
Plant account, . . . .	15,000 00	
Balance from previous year, . . . .		\$4,833 62
Gross earnings from operation, . . . .		15,748 26
Balance, deficit, . . . .		6,607 17
	\$27,189 05	\$27,189 05

## POSTAL TELEGRAPH-CABLE COMPANY OF MASSACHUSETTS.

Location of principal business office: 100 State Street, Boston, Mass.

Date of organization: April 3, 1896.

Date of incorporation: April 3, 1896.

State in which incorporated: Massachusetts.

Date of annual meeting: fourth Saturday in July.

Service is given by this company over its own lines in the following cities and towns:—

Amherst,	Danvers,	New Bedford,
Attleborough,	Fall River,	Northampton,
Beverly,	Falmouth,	Springfield,
Boston,	Framingham,	Taunton,
Brookline,	Holyoke,	Westfield,
Cambridge,	Lynn,	Woburn,
Charlton,	Malden,	Worcester.
Chelsea,	Manchester,	
Chicopee,	Natick,	

## GENERAL OFFICERS AND OFFICIAL TITLES.

Charles A. Richardson,	.	.	.	.	.	<i>President.</i>
Edward B. Pillsbury,	.	.	.	.	.	<i>Vice-President.</i>
Theodore L. Cuyler, Jr.,	.	.	.	.	.	<i>Treasurer.</i>
Frank G. McGinnis,	.	.	.	.	.	<i>Clerk and Transfer Agent.</i>

## DIRECTORS AND RESIDENCES.

Edward J. Nally,	.	.	.	.	.	Ossining, N. Y.
Charles P. Bruch,	.	.	.	.	.	780 Park Ave., New York, N. Y.
Charles A. Richardson,	.	.	.	.	.	Dorchester, Mass.

## CAPITAL.

Capital authorized by charter,	.	.	.	.	.	\$5,000 00
Capital paid in, 50 shares; par value, \$100,	.	.	.	.	.	5,000 00
Whole number of stockholders,	.	.	.	.	.	1
Number of stockholders resident in Massachusetts,	.	.	.	.	.	None.

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, <sup>1</sup>	.	\$371,638 01
Total expense,	.	375,606 86
Deficit for year ending June 30, 1912,	.	\$3,968 85

## EARNINGS (WHOLE SYSTEM).

Gross earnings from operation,	.	.	.	.	.	\$371,638 01
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## EXPENSES (WHOLE SYSTEM).

## Operating expenses:—

## General expense:—

Salaries of officers,	.	.	.	.	\$3,359 49
Postage, printing and stationery,	.	.	.	.	8,188 66
Miscellaneous office expenses,	.	.	.	.	11,824 00
Damages,	.	.	.	.	2,551 37
Legal,	.	.	.	.	295 81
Rent of right of way,	.	.	.	.	932 72
Insurance,	.	.	.	.	724 20
Taxes,	.	.	.	.	1,232 08
Total general expense,	.	.	.	.	\$29,108 33

## Operating:—

Wages of operators and others,	.	.	.	.	\$192,382 51
Wages of messengers,	.	.	.	.	66,848 90
Rent, light and heat,	.	.	.	.	49,795 72
Advertising and canvassing,	.	.	.	.	105 73
Incidental,	.	.	.	.	2,080 75
Total operating expense,	.	.	.	.	311,213 61

## Current repair:—

Repairs overhead lines,	.	.	.	.	\$31,703 80
Repairs call circuits,	.	.	.	.	2,365 16
Repairs instruments and batteries,	.	.	.	.	1,215 96
Total current repairs,	.	.	.	.	35,284 92

Total of all operating expenses,	.	.	.	.	.	\$375,606 86
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<sup>1</sup> Gross earnings in Massachusetts, \$29,150 03.



## GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Plant required for operation, . . . . .		\$5,000 00
Current assets:—		
Cash on hand, . . . . .	\$52,737 65	
Accounts receivable, . . . . .	58,185 73	
Supplies on hand, . . . . .	245 13	
Total current assets, . . . . .		111,168 51
Balance, deficit, . . . . .		22,248 25
		<hr/>
Total debits, . . . . .		\$138,416 76
<i>Liabilities.</i>		
Capital stock, common, . . . . .		\$5,000 00
Current liabilities:—		
Accounts payable, . . . . .		133,416 76
		<hr/>
Total credits, . . . . .		\$138,416 76

## PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year, . . . . .	\$35,020 96	
Operating expenses, . . . . .	375,606 86	
Gross earnings from operation, . . . . .		\$371,638 01
Adjustment in respect of 1911 earnings, . . . . .		16,741 56
Balance, deficit, . . . . .		22,248 25
	<hr/>	<hr/>
	\$410,627 82	\$410,627 82

## TELEPOST COMPANY OF MASSACHUSETTS.

Date of organization: Feb. 10, 1909.

Date of incorporation: Feb. 10, 1909.

State in which incorporated: Massachusetts.

Date of annual meeting: second Tuesday in February.

Date when company began to give service: July 1, 1909.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Harvey Lee Sellers, . . . . .	<i>President.</i>
Robert Henry Sellers, . . . . .	<i>Secretary and Treasurer.</i>
Louis Solomon, . . . . .	<i>Clerk.</i>

## DIRECTORS AND RESIDENCES.

Harvey Lee Sellers, . . . . .	Montclair, N. J.
Robert Henry Sellers, . . . . .	Montclair, N. J.
Thomas Conyngton, . . . . .	Upper Montclair, N. J.

## CAPITAL.

Capital authorized by charter, . . . . .	\$10,000 00
Capital authorized by vote of company, . . . . .	10,000 00
Capital paid in, 100 shares; par value, \$100, . . . . .	10,000 00

Whole number of stockholders, . . . . .	3
Number of stockholders resident in Massachusetts, . . . . .	None.
Amount of stock held by parent telegraph company (shares), . . . . .	98

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Revenue from operation, . . . . .		\$99 20
General expense, . . . . .	\$33 52	
Operating expense, . . . . .	1,862 28	
Current repair, . . . . .	672 00	
Total expenses, . . . . .		2,567 80
Deficit for year ending June 30, 1912, . . . . .		\$2,468 60

## EARNINGS.

Gross earnings from operation, . . . . .	\$99 20
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## EXPENSES.

## General expense:—

Rent of right of way, . . . . .	\$33 52
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## Operating:—

Superintendence and wages of operators, . . . . .	\$875 00
Wages of messengers, . . . . .	160 00
Telephone charges, . . . . .	83 28
Rent, light and heat, . . . . .	624 00
Incidental, . . . . .	120 00
Total operating expense, . . . . .	1,862 28
Current repairs, . . . . .	672 00
Total of all operating expenses, . . . . .	\$2,567 80

## GENERAL BALANCE SHEET.

## Assets.

Overhead lines, . . . . .	\$100 00
Underground lines, . . . . .	4,939 49
Equipment, . . . . .	250 00
Total plant account, . . . . .	\$5,289 49
Contracts and licenses, . . . . .	10,000 00
Current assets:—	
Notes and accounts receivable, . . . . .	202 38
Total assets, . . . . .	\$15,491 87
Balance, deficit, . . . . .	4,508 13
Total debits, . . . . .	\$20,000 00

## Liabilities.

Capital stock, . . . . .	\$10,000 00
Current liabilities:—	
Loans and notes payable, . . . . .	10,000 00
Total credits, . . . . .	\$20,000 00

## PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year, . . . . .	\$2,039 53	
Operating expenses, . . . . .	2,567 80	
Gross earnings from operation, . . . . .		\$99 20
Balance, deficit, . . . . .		4,508 13
	\$4,607 33	\$4,607 33

## PROPERTY ACCOUNTS (DEDUCTIONS DURING THE YEAR).

Office furniture and fixtures, . . . . .	\$360 10
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NOTE.—“As evidenced by the foregoing report, during the past year the company's business transacted in the Commonwealth of Massachusetts has been very

limited, and it is now altogether suspended, pending the building of a line from Boston to New York.

The incorporation and organization, however, are being maintained, together with its franchises, etc., so that as soon as the extension is built and put into operation the company can resume business on a profit and loss basis."

### UNITED TELEGRAM COMPANY.

Location of principal business office: 26 Congress Square, Boston, Mass.

Date of organization: June, 1890.

Date of incorporation: June 16, 1890.

State in which incorporated: New Jersey.

Date of annual meeting: first Wednesday in November.

Date when company began to give service: June, 1890.

Service is given by this company over its own lines in the city of Boston, Mass.

#### GENERAL OFFICERS AND OFFICIAL TITLES.

Charles F. Parker, . . . . .	<i>President.</i>
Walter L. Sanborn, . . . . .	<i>Vice-President.</i>
L. Wallace Sweetser, . . . . .	<i>Treasurer.</i>
G. L. Ellwood, . . . . .	<i>Assistant Treasurer.</i>

#### DIRECTORS AND RESIDENCES.

Charles F. Parker, . . . . .	Natick, Mass.
Walter L. Sanborn, . . . . .	Newton, Mass.
L. W. Sweetser, . . . . .	Wakefield, Mass.
Carl C. Lane, . . . . .	Quincy, Mass.
Walter E. Severance, . . . . .	Dorchester, Mass.
Lewis C. Harris, . . . . .	Newark, N. J.
Stuart F. Martin, . . . . .	Jamaica Plain, Mass.

#### CAPITAL.

Capital authorized by charter, . . . . .	\$500,000 00
Capital authorized by vote of company, . . . . .	50,000 00
Capital paid in, 10,000 shares; par value, \$5, . . . . .	50,000 00

Whole number of stockholders, . . . . .	74
Number of stockholders resident in Massachusetts, . . . . .	30
Amount of stock held in Massachusetts (shares), . . . . .	7,469

#### DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
July 1, 1890	July 1, 1920	Income bonds, . . . . .	5	\$200,000 00
Total amount of bonds and notes, . . . . .				\$200,000 00
Capital paid in, . . . . .				50,000 00
Total liability for capital and loans, . . . . .				\$250,000 00

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Revenue from operation, . . . . .		\$38,537 02
General expense, . . . . .	\$11,883 77	
Operating expense, . . . . .	10,144 73	
Current repair, . . . . .	2,880 00	
Rented lines, . . . . .	16,042 46	
Total expenses, . . . . .		<u>40,950 96</u>
Deficit from operation, . . . . .		\$2,413 94
Miscellaneous income:—		
Interest, . . . . .		<u>1,397 35</u>
Deficit for year ending June 30, 1912, . . . . .		\$1,016 59

## EARNINGS.

Gross earnings from operation:—	
Stocks and markets, . . . . .	\$38,537 02
Miscellaneous income:—	
Interest, . . . . .	<u>1,397 35</u>
Total gross earnings and income, . . . . .	\$39,934 37

## EXPENSES.

General expense:—	
Salaries of officers, . . . . .	\$5,000 04
Wages of clerks, . . . . .	3,260 00
Postage, printing and stationery, . . . . .	883 74
Storeroom expenses, . . . . .	27 00
Legal, . . . . .	10 00
Rent of land and buildings, . . . . .	1,750 04
Insurance, . . . . .	30 00
Taxes, . . . . .	266 39
General expense, . . . . .	656 56
Total general expense, . . . . .	<u>\$11,883 77</u>
Operating:—	
Superintendence, . . . . .	\$1,900 00
Wages of operators, . . . . .	5,821 25
Wages of others, . . . . .	1,548 48
Telephone charges, . . . . .	75 70
Light and power, . . . . .	379 54
Incidental, . . . . .	419 76
Total operating expense, . . . . .	<u>10,144 73</u>
Current repair:—	
Repairs overhead lines, . . . . .	\$480 00
Repairs underground lines, . . . . .	480 00
Repairs instruments and batteries, . . . . .	1,920 00
Total current repairs, . . . . .	<u>2,880 00</u>
Rented lines, . . . . .	<u>16,042 46</u>
Total of all operating expenses, . . . . .	\$40,950 96

## GENERAL BALANCE SHEET.

<i>Assets.</i>						<i>Items.</i>	<i>Totals.</i>
Equipment, . . . . .						\$9,195 00	
Tickers, . . . . .						19,897 25	
Franchise, . . . . .						80,000 00	
Ticker rights, . . . . .						102,788 73	
Total plant account, . . . . .							\$211,880 98
Current assets:—							
Cash on hand, . . . . .							2,710 44
Sinking and other special funds:—							
Funds in escrow, . . . . .							35,000 00
Total assets, . . . . .							\$249,591 42
Balance deficit, . . . . .							946 08
Total debits, . . . . .							\$250,537 50
<i>Liabilities.</i>							
Capital stock, . . . . .							\$50,000 00
Bonded debt, . . . . .							200,000 00
Current liabilities:—							
Dividends not called for, . . . . .							537 50
Total credits, . . . . .							\$250,537 50

## PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Operating expenses, . . . . .	\$40,950 96	
For depreciation:—		
Ticker rights, . . . . .	1,853 29	
Balance from previous year, . . . . .		\$1,923 80
Gross earnings from operation, . . . . .		38,537 02
Miscellaneous income:—		
Interest, . . . . .		1,397 35
Balance, deficit, . . . . .		946 08
	\$42,804 25	\$42,804 25

## PLANT ACCOUNTS (DEDUCTIONS DURING THE YEAR).

	<i>Totals.</i>
Ticker rights, . . . . .	\$1,853 29

## THE WESTERN UNION TELEGRAPH COMPANY.

Location of principal business office: 195 Broadway, New York, N. Y.

Date of organization: April 1, 1851.

Date of incorporation: April 1, 1851.

State in which incorporated: New York.

Date of annual meeting: second Wednesday in October.

Date when company began to give service: April 1, 1851.

## GENERAL OFFICERS AND OFFICIAL TITLES.

Theodore N. Vail,	. . . . .	<i>President.</i>
Newcomb Carlton,	. . . . .	<i>Vice-President.</i>
J. B. Van Every,	. . . . .	<i>Vice-President.</i>
Thomas F. Clark,	. . . . .	<i>Vice-President.</i>
G. W. E. Atkins,	. . . . .	<i>Vice-President.</i>
Belvidere Brooks,	. . . . .	<i>General Manager.</i>
A. R. Brewer,	. . . . .	<i>Treasurer.</i>
Wm. H. Baker,	. . . . .	<i>Secretary.</i>
E. Y. Gallaher,	. . . . .	<i>General Auditor.</i>
Rush Taggart,	. . . . .	<i>General Counsel.</i>
J. C. Willever,	. . . . .	<i>United States Manager Cable System.</i>
George H. Fearons,	. . . . .	<i>General Attorney.</i>
John F. Dillon,	. . . . .	<i>Consulting Counsel.</i>
Francis N. Whitney,	. . . . .	<i>Tax Attorney.</i>
J. C. Nelson,	. . . . .	<i>Assistant to General Manager.</i>
Lewis Dresdner,	. . . . .	<i>Assistant Treasurer.</i>
F. W. Lienau,	. . . . .	<i>Assistant Secretary.</i>
H. W. Ladd,	. . . . .	<i>Assistant Auditor.</i>
C. F. Ames,	. . . . .	<i>District Superintendent, Boston, Mass.</i>

## DIRECTORS.

Oliver Ames,	Henry M. Flagler,
Union N. Bethell,	Robert M. Gallaway,
Henry A. Bishop,	Edwin Gould,
Robert C. Clowry,	George J. Gould,
Henry P. Davison,	Edward J. Hall,
Chauncey M. Depew,	Henry S. Howe,
Harris C. Fahnestock,	Thomas H. Hubbard,
Edward T. Jeffery,	Joseph J. Slocum,
Charles Lanier,	James Stillman,
Lewis Cass Ledyard,	Harry B. Thayer,
Robert S. Lovett,	Theodore N. Vail,
John J. Mitchell,	Henry Walters,
William H. Moore,	John I. Waterbury,
J. Pierpont Morgan,	J. C. Willever,
Jacob H. Schiff,	Robert Winsor.

## CAPITAL.

Capital authorized by charter, . . . . .	\$100,000,000 00
Capital authorized by vote of company, . . . . .	100,000,000 00
Capital paid in, 998,171 shares; par value, \$100, . . . . .	99,817,100 00

Whole number of stockholders, . . . . .	12,291
Number of stockholders resident in Massachusetts, nearly . . . . .	2,000

## DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
Sundry dates since 1900	May 1, 1950	Funding and real estate mortgage.	4½	\$20,000,000 00
Sundry dates since 1888	Jan. 1, 1938	Collateral trust (issued \$8,745,000 and outstanding).	5	8,745,000 00
Total amount of bonds and notes, . . . . .				\$28,745,000 00
Capital paid in, . . . . .				99,817,100 00
Total liability for capital and loans, . . . . .				\$128,562,100 00

## CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, <sup>1</sup> . . . . .	\$41,661,439 48	
Less rebates and discounts, . . . . .	977,018 84	
Revenue from operation, . . . . .		\$40,684,420 64
General expense, <sup>2</sup> . . . . .	\$21,633,769 22	
Operating expense, . . . . .	4,084,738 54	
Current repair, . . . . .	3,712,367 79	
Reconstruction, . . . . .	1,956,967 93	
Deferred maintenance, . . . . .	274,376 38	
Rented lines, . . . . .	1,967,252 27	
Total expenses, . . . . .		33,629,472 13
Net revenue from operation, . . . . .		\$7,054,948 51
Miscellaneous income:—		
Real estate revenue, . . . . .	\$171,109 12	
Income from securities, . . . . .	1,154,684 89	
Other miscellaneous income, . . . . .	573 66	
Total miscellaneous income, . . . . .		1,326,367 67
Total income above expense, . . . . .		\$8,381,316 18
Interest charges:—		
Interest on funded debt, . . . . .	\$1,670,416 79	
Interest on floating debt, . . . . .	94,138 12	
Total fixed charges, . . . . .		1,764,554 91
Surplus of net income above fixed charges, . . . . .		\$6,616,761 27
Amount carried forward, . . . . .		\$6,616,761 27

<sup>1</sup> Gross earnings in Massachusetts, \$100,187.67.<sup>2</sup> Including taxes.

	Items.	Totals.
<i>Amount brought forward,</i>		\$6,616,761 27
Sinking fund charges:—		
Ocean cable debits,	\$1,363,207 01	
Reserve for repairs and reconstruction of land lines,	1,250,000 00	
Total sinking fund charges,		2,613,207 01
Net divisible income,		\$4,003,554 26
Dividends declared:—		
3% on \$99,817,100,		2,991,823 50
Surplus for year ending June 30, 1912,		\$1,011,730 76

## EARNINGS (WHOLE SYSTEM).

Gross earnings from operation:—		
Message tolls,	\$33,291,453 83	
Cable tolls,	2,081,177 18	
Stock and commercial news,	1,526,105 11	
Money transfers,	506,989 88	
Messenger service,	534,346 47	
Leased wires,	1,763,797 47	
Press messages,	1,660,888 85	
Time service receipts,	269,432 79	
Election returns and miscellaneous,	27,247 90	
	\$41,661,439 48	
Less rebates and discounts,	977,018 84	
Total gross earnings from operation,		\$40,864,420 64
Miscellaneous income:—		
Real estate revenue,	\$171,109 12	
Dividends on stocks of other companies and interest on bonds and notes of other companies,	1,154,684 89	
Ocean cable credits,	573 66	
Total miscellaneous income,		1,326,367 67
Total gross earnings and income,		\$42,010,788 31

## EXPENSES (WHOLE SYSTEM).

Operating expenses:—		
General expense:—		
Salaries of officers and wages of clerks,	\$15,727,558 95	
Printing and stationery,	586,886 30	
Miscellaneous expenses and taxes,	2,093,336 88	
Travelling and tax expenses,	26,607 87	
Bad debts cancelled,	254,443 55	
Damages,	209,250 45	
Legal,	166,114 18	
Paid railroad companies,	1,142,456 33	
Rent of buildings and offices,	1,307,104 65	
Cable general expenses,	120,010 06	
Total general expense,		\$21,633,769 22
<i>Amount carried forward,</i>		\$21,633,769 22



	Items.	Totals.
<i>Amount brought forward,</i> . . . . .		\$21,633,769 22
Operating:—		
Superintendence, . . . . .	\$443,551 54	
Wages of operators, cable operations, . . . . .	568,039 34	
Wages of messengers, . . . . .	2,469,705 10	
Telephone charges and commission, . . . . .	129,614 80	
Light and heat, . . . . .	263,920 99	
Obtaining stock and commercial news reports, . . . . .	209,906 77	
Total operating expense, . . . . .	— — — — —	4,084,738 54
Current repair:—		
Repairs overhead, underground and submarine lines, call circuits, and instruments and batteries, . . . . .	\$3,265,477 96	
Office repairs and furniture, . . . . .	446,889 83	
Total current repairs, . . . . .	— — — — —	3,712,367 79
Rented lines, . . . . .		1,967,252 27
Total expenses, not including charges for reconstruction and deferred maintenance, . . . . .		\$31,398,127 82
Reconstruction items charged to expense:—		
Repairs overhead and underground lines, . . . . .	\$1,785,949 28	
Repairs submarine lines, . . . . .	171,018 65	
Total of reconstruction items charged to expense, . . . . .	— — — — —	1,956,967 93
Deferred maintenance items charged to expense:—		
Repairs overhead and underground lines, . . . . .	\$161,981 55	
Repairs submarine lines, . . . . .	102,662 32	
Extinguishment of patents, . . . . .	9,732 51	
Total of deferred maintenance items charged to expense, . . . . .	— — — — —	274,376 38
Total of all operating expenses, . . . . .		\$33,629,472 13

## GENERAL BALANCE SHEET.

*Assets.*

## Property account:—

Telegraph lines and equipment, including properties controlled by stock ownership or held under perpetual leases and merged in the Western Union System, . . . . .	\$129,000,538 68
Real estate, . . . . .	5,948,149 68
Patents, . . . . .	122,934 64

Amount recoverable on the expiration of long term lease in respect of obligations assumed thereunder, . . . . . 1,180,000 00

— — — — — \$136,251,623 00

## Other securities owned:—

Stock of telegraph, cable and other allied companies operated under term leases (not including securities held as lessee, amounting to a par value of \$2,236,642), . . . . .	\$6,267,267 32
Stock of telegraph, cable and other allied companies not leased, . . . . .	4,874,768 95

*Amounts carried forward,* . . . . . \$11,142,036 27 \$136,251,623 00

	Items.	Totals.
<i>Amounts brought forward,</i> . . . . .	\$11,142,036 27	\$136,251,623 00
<i>Other securities owned — Concluded.</i>		
Sinking fund (cash and securities), . . . . .	69,367 06	
Miscellaneous investments, . . . . .	357,887 45	
Purchase money, notes and obligations, . . . . .	8,000,000 00	
		19,569,290 78
Inventories of material and supplies, . . . . .		2,308,585 59
<i>Current assets: —</i>		
Bills and accounts receivable, including managers' and superintendents' balances, etc. (less reserve for doubtful accounts), . . . . .	\$6,313,000 54	
Treasurer's balances, including cash at banks at New York and outside depositories and in transit, . . . . .	3,082,492 33	
		9,395,492 87
Total, . . . . .		\$167,524,992 24
<i>Liabilities.</i>		
Capital stock issued, . . . . .	\$99,817,100 00	
Less held in treasury, . . . . .	30,341 04	
		\$99,786,758 96
<i>Capital stock of subsidiary companies not owned by the Western Union Telegraph Company (par value): —</i>		
Companies controlled by perpetual leases, . . . . .	\$3,435,475 00	
Companies controlled by stock ownership, . . . . .	457,900 00	
		3,893,375 00
<i>Funded debt: —</i>		
Bonds of the Western Union Telegraph Company 4½ per cent. funding and real estate mortgage fifty-year gold bonds, 1950, . . . . .	\$20,000,000 00	
Collateral 5 per cent. trust bonds, 1938, . . . . .	8,745,000 00	
Bonds of subsidiary companies assumed or guaranteed by the Western Union Telegraph Company, . . . . .	\$7,000,000 00	
Less held in treasury, . . . . .	3,143,000 00	
	3,857,000 00	
		32,602,000 00
Total capital liabilities, . . . . .		\$136,282,133 96
<i>Current liabilities: —</i>		
Accounts payable, . . . . .	\$3,244,174 81	
Accrued taxes, . . . . .	461,422 96	
Interest and guaranteed dividends accrued on bonds and stocks, . . . . .	319,286 64	
Unpaid dividends (including dividend of \$748,008 payable July 15, 1912), . . . . .	781,998 73	
		4,806,883 14
<i>Amount carried forward,</i> . . . . .		\$141,089,017 10

	Items.	Totals.
<i>Amount brought forward,</i> . . . . .		\$141,089,017 10
Deferred non-interest bearing liabilities, in respect of proceeds of sales of securities and other properties held under leases, for terms expiring in 1981 and 2010 from lessee companies in which the Western Union Telegraph Company has for the most part a controlling interest, payable only on the determination of the leases, . . . . .		12,385,763 19
Reserves: —		
For maintenance of cables, . . . . .	\$1,585,081 26	
For reconstruction land lines, . . . . .	1,411,981 55	
Other reserves, . . . . .	327,062 40	
		<hr/> 3,324,125 21
Surplus: —		
Balance stated on annual report of June 30, 1911, . . . . .	\$10,114,355 98	
Deduct premium on convertible redeemable bonds retired May 1, 1912, . . . . .	400,000 00	
		<hr/> \$9,714,355 98
Add balance from income account, . . . . .	1,011,730 76	
		<hr/> 10,726,086 74
Total, . . . . .		<hr/> \$167,524,992 24

## GENERAL REMARKS AND EXPLANATIONS.

"There are 25,392 offices in the entire system of the company, of which 12 are in England. In Massachusetts 463 offices, not counting branch offices in cities, but over 1,000 places in the State have telegraph facilities of this company."



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# INDEX.

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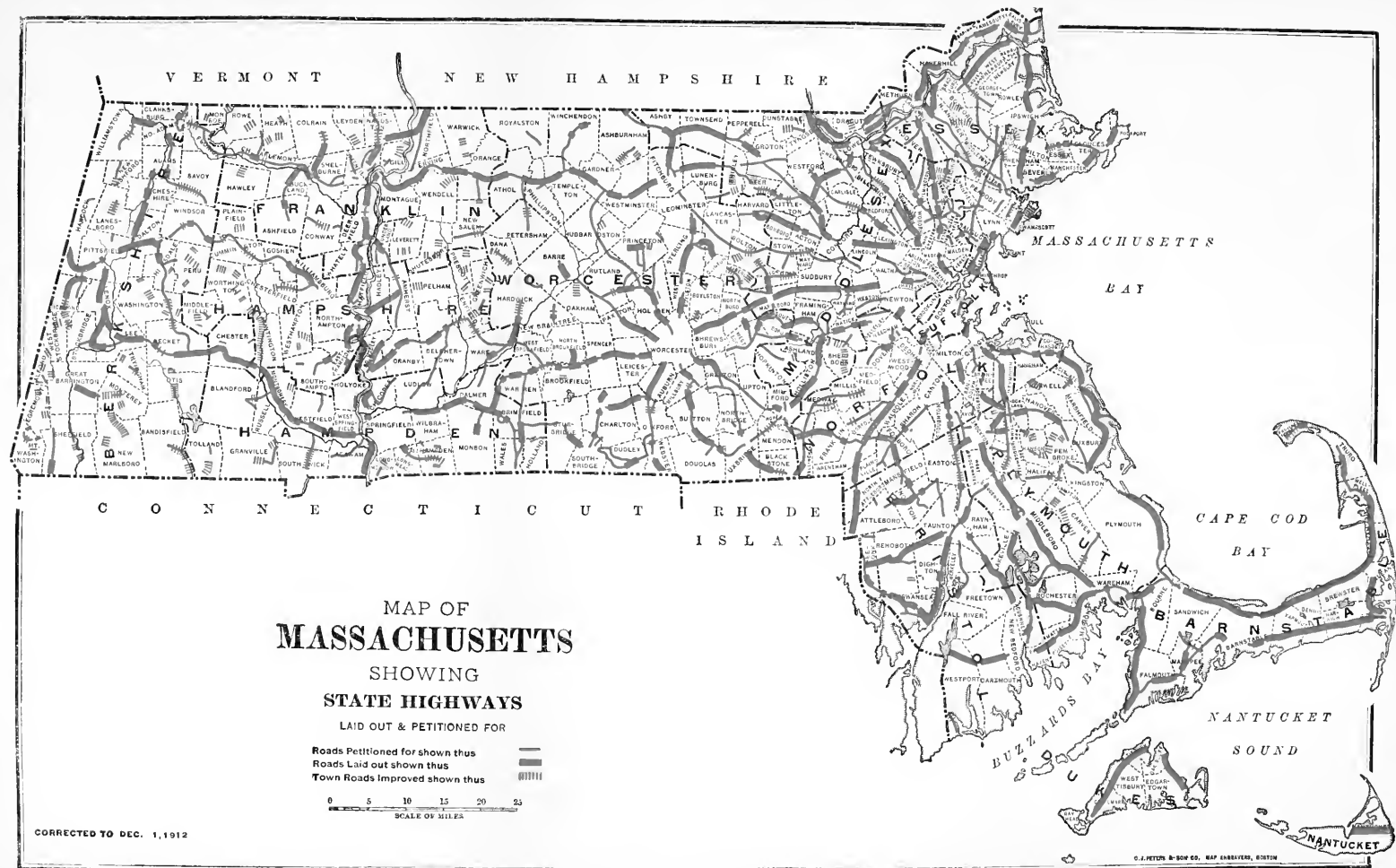
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MAP OF  
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